MEDICAL REPOSITORY,

FOR

MAY, JUNE, AND JULY, 1809.

The HISTORY *and* DISSECTION *of a* FEMALE CHILD *aged two years and nine months, in whose body after death, was found a fœtus of a monstrous appearance. By Dr.* EDWARD B. GAITHER, *of Springfield, Kentucky.*

[HALLER, the celebrated professor of Gottingen, and author of that great work, the *Elementa Physiologiæ*, has mentioned the subject of fœtal impregnation in his eighth volume p. 93. Although he admits the reality of conception in many cases, without sexual intercourse, and independent of all genital connection, he hesitates to admit the cases alleged to have happened in quadrupeds, by NIGRISOLI, LABAT, MARIGLI, and ARISTOTLE. And he considers the facts adduced to support such occurrences in the human species, as doubtful tales. Yet he quotes RZASCYNSKI's *Natural History of Poland* for an example of a female child who was pregnant when she was born. The distinguished OTTO contends at great length and with much accuracy in support of the instance recorded in the Ephemerides Naturæ curiosorum, of a new-born babe herself bringing forth. THOMAS BARTHOLINE relates a dissection wherein a pregnant fœtus was found within the mother. There are authorities in MANGET's BIBLIOTHECA to the same point. SCHURIG and more recently LENTIN, have collected a variety of similar occurrences. Haller himself recites what he terms a recent case of a child that appeared to have been born with a gravid belly. Indeed a *congenitum monstrum*, or monstrous production coeval with the body in which it is produced, seems to have frequently obtruded itself with all its embarrassing and humiliating accompaniments, upon public notice. After remarking these things, the inquirer of the present day, may indeed agree with the noble Baron of Berne, " Si " vera hujusmodi exempla sunt, redibit homo in conditionem " aphidis, quæ et ipsa gravida nascitur."—*If these things*

are true, the human species must be ranked with the aphis (a prolific and troublesome insect) which is born pregnant.]
E.

BELIEVING it the duty of professional men, and particularly of the healing art, to lay before the public such occurrences in their practice, as from their singularity, may either awaken useful enquiry, or promote substantially the happiness of man, by increasing the catalogue of facts whence a knowledge of the animal economy is derived, I, who am a young and diffident practitioner of medicine, beg leave to submit to the public a fact of that description. It is so contrary to the common course of nature, and to the prevailing and generally received opinions of the learned in the science of physiology, as to justify the conjecture that nature has yet many mysteries in reserve of great importance to the human family. When or in what manner she may please to disclose them; whether she will surrender them voluntarily and in connection, or whether they are to be unfolded singly, and by seeming accident, and at irregular intervals, remains equally a mystery. Possibly the learned may avail themselves of the instance I am about to relate, either to elicit or extort from her many valuable secrets.—It is with this view and hope, that it is submitted to them. It will be faithfully and accurately related, and can be in all its material parts substantiated by many persons of unquestionable veracity.

On the 7th of April, in the county of Washington, I was called to visit a female child, the daughter of John Milbourn, jun. The child was two years and nine months old, and was supposed to be affected with the ascites or dropsy of the belly. She died about three hours after my arrival.

Her parents gave me a detailed account of her case, and its various symptoms. I was by no means satisfied that it was a real dropsy, though there were great tumefaction and tenseness of the abdomen, and fluctuations evidently felt when pressed by the hand. But as the symptoms were some of them inappropriate to the disease, and others equivocal, I could not but suspect that her disease had been either unknown or misconceived. I therefore prevailed on her parents to permit an examination. The opening was performed in the usual way by a longitudinal incision, from below the sternum and reaching near the pubes; and a transverse one passing through the epigastric sides.

A cavity was opened at about half the distance between the abdominal cavity and the exterior surface, that discharged

between three quarts and a gallon of yellow water, which smelled like rotten eggs. Within this cavity was found a monster, or imperfect child, and also an animal substance of a whitish colour. The monster weighed one pound and fourteen ounces—The substance weighed two ounces, was rather of an oval figure, and was connected to the child from which it was taken by a cord that had some faint resemblance to the umbilical. On one extremity of the substance is a small teat or protuberance about half an inch long, and between one fourth and one half an inch in diameter, and immediately by it is hair of a darkish or auburn colour, about an inch and one fourth long. The only analogy it bears to the human skin is, that it is covered by the epidermis.

The monster occupied part of the epigastric and the umbilical regions. It was not connected to the inner surface of its cavity by a cord or any visible medium. Whether a cord or other medium of connection had existed and been destroyed by putrefaction (which from the smell of the fluid and other appearances had commenced) could not positively be ascertained. That there must have been some medium of connection I am assured as well by the universal course of nature and analogy on this subject, as by an appearance at the articulation of the cervical and dorsal vertebræ, resembling faintly the divided funis.

The position of the monster in its envelope was awkward; its thighs drawn up to the abdomen and attached to it in places. The left resting on the shoulder and reaching as far as the back part of the head; the right resting or pressing on the back of the right hand; the bones of each thigh have perforated the flesh at the knee, and are about half an inch out. The left leg is imperfect, and lies back along the thigh to which it has grown. The right leg is also imperfect, its foot is suspended over the head. On one foot are three toes; on the other a small appearance of two. From the knees to the shoulders there is considerable perfection of form. Its sex is indistinctly marked—The indications are of the feminine. The left arm should rather be called a stump than an arm, it has no hand—at the end of the stump is a nail. The right arm is large and long, it has three fingers and the thumb. The head is very imperfect—it rests upon the breast between the knees. It has neither ears nor eyes, nor appearance of any substitute for either—no mouth nor any thing that has a near resemblance to it.

There is on the left side of the face, or rather that region of the head which the face should occupy, a small prominence which contains three teeth, one canine and two incisores—they are about the size of the teeth of a child of two years old. This prominence or mouth, if it may be so called, has no aperture. On the back part of the head was hair of a dark or rather of an auburn colour, eight or nine inches long. The body of the monster was 7 inches long and 10 inches in circumference. The thighs 6—8 in circumference. The arm 5 inches long—the stump not quite 4 inches in length.

The interior of the cavity which contained the monster, resembled the membrana decidua. This appearance was assumed, for upon examination there was not any vestige of membrane peculiar to the monster discovered. Having explored this cavity and dislodged its contents, I extended the incision through the muscular partition into the abdominal cavity, and examined the viscera. They were rather pale, otherwise natural.

The little girl that those monsters were taken from, for about nine months was healthy. Her parents discovered when she was only a month or two old, something hard within the abdomen which continued to increase. After this time she became less healthy; but her complaints were those incidental to all children. About nine months prior to her death, she began to decline and became emaciated; her appetite continued strong; her longings and desire for ardent spirits were great; she would become intoxicated if indulged in the free use of them; it took a considerable quantity to affect her; she drank freely an hour before her death. I believe it was the use of spirits in part that supported her so long. She was of the ordinary size of children at her age, had dark hair and eyes, and would have been handsome, but for a gloom and melancholy that sat upon her countenance, which made her appearance peculiarly interesting—She looked like the child of grief. Her countenance exhibited evidences of a good understanding, and her little tongue confirmed it.

April 26, 1809—John Rowan certifies that he examined with anxiety and attention the monster above described, and also the substance, and believes the description to be accurate. He also conversed with the young gentleman who was present and assisted at the operation—his statements were correspondent with the above narration of facts and circumstances. In the veracity of the relator

and young gentleman with whom he conversed, he has absolute confidence.

THOS. J. COCKE certifies that he examined the above described monster, and that it answers to the description given; and that he has the fullest belief of the whole of the facts as related.

JOHN CALHOUN also certifies that he has particularly examined the monster above described, and it corresponds with the above statement; and he has the fullest confidence that all the circumstances as stated are correct.

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For the further illustration of this subject, we present to the reader the following case of a fœtus found in the belly of a young man of fourteen years old, who died a few years since in France. The facts are stated on the authority of a commission of the Medical School of Paris, and are too well established to be controverted.

"Amidée Bissieu, in whose body the fœtus was found, had complained, from the time he could make himself understood, of a pain in the left side, which was, at a very early period, enlarged into the form of a tumour. These symptoms continued, without materially affecting the health of the child, till he had attained his thirteenth year, when he was suddenly attacked with fever. From that moment the tumour became very large and painful; and, after some days, his stools were observed to be fœtid and puriform. At the end of three months from this attack, he plainly laboured under a sort of pulmonary consumption. Shortly afterwards he passed by stool a ball of hairs, and at the end of six weeks more he died.

"The body being opened by Mess. Guérin and Bertin, there were found in a sac attached to the arch of the colon, and communicating with it, some balls of hair, and an organized mass, resembling, in many points, a human fœtus. The connexion between the habitual indisposition of Bissieu and his disease is obvious, as well as that between the disease and the appearances by dissection. This first point being ascertained by authentic documents, it became of the highest importance to determine the position of the organized mass, and the situation in which it had been formed. Now, the inspection of the parts sent to the society by M. Blanche, surgeon at Rouen, clearly demonstrates that it was

contained in a cyst situated in the transverse mesocolon, near the intestinum colon, and without the canal of the primæ viæ. The cyst, indeed, communicated with the intestine; but this communication was recent, and, in some measure accidental; and the remains of the separation between the two cavities were still evident.

" The true position of the organized mass being determined, it was necessary to ascertain its nature. We found, in its form, many points of resemblance with the human fœtus, but we observed, at the same time, a great many particular dispositions, some of which appeared to belong to vices of conformation, and others to derangements successively produced by time, and by its retention in the mesocolon.

" There appeared a sure method of determining the true character of this production. It is evident, that if it possessed a system of organs independent of those of the body to which it was attached, it should be considered as an individual; on the contrary, if nothing could be discovered but a continuous organization, it should be referred, whatever might be its external form, to the class of tumours which originate in every part of organized bodies, and be no longer regarded as a phenomenon. The dissection of this mass, performed with extraordinary care, discovered traces of some of the organs of sense; a brain, a spinal marrow, and large nerves; muscles degenerated into a kind of fibrous matter; a skeleton composed of a spine, a head, a pelvis, and the rudiments of the limbs; lastly, an umbilical cord, very short, and inserted into the mesocolon without the intestinal cavity; an artery and a vein ramified at both extremities, that belonging to the fœtus, and that belonging to the individual in whom it was found. The existence of the preceding organs certainly demonstrates the individuality of this organized mass, although it was otherwise deprived of the organs of digestion, respiration, of urine, and of generation: the absence of a great many organs necessary to life ought only to make us regard it as one of those monstrous fœtuses destined to perish at the moment of their birth.

" The existence of an organized mass in the mesocolon being ascertained, its analogy with the human fœtus being determined, it still remained for us to inquire how long it had been there, how formed in the body of another individual, and how it had existed there?

" This fœtus being found without the alimentary canal, it cannot be allowed to have been introduced into the body of the young Bissieu after birth; which destroys the greater

number of hypotheses which have been imagined to explain this phenomenon. The sex of Bissieu, perfectly ascertained by Mess. Delzeuse and Bronard, by order of the Prefect of the Eure, precludes, besides, all idea of fecundation; nor could he be self-impregnated, since he was provided with male organs only, without the smallest trace of those of the other sex.

"The facts which form the basis of this report lead naturally to very different notions; the indisposition to which Bissieu had been subject from childhood; the nature of the symptoms of this indisposition; those also of the disease which immediately succeeded it, and the appearances discovered on dissection, are so allied, that we cannot avoid acknowledging between them a necessary dependence, and concluding that this unfortunate young man had been born with the cause of the disease which cut him off at the end of 14 years.

"Many other facts conspire to prove the long existence of the fœtus in the body of young Bissieu. Such are, the size of its teeth, the fibrous degeneration of its muscles, the induration of the brain, the abrasion of the skin in a great many points, the caries of several bones, the anchylosis of others, the ossification of the cyst, &c. &c.; changes which require a very long time. But, admitting that this fœtus was coeval with the individual to whom it was attached, there still remains, for those who would explain every thing, a great difficulty to surmount, its situation in the transverse mesocolon. The curious facts exposed in this report are certainly the most important part of it, and are, to a certain extent, independent of any explanation which may be offered: it necessarily, however, became an object to seek, in the facts, an explanation of the phenomenon. Not unfrequently we meet with twins connected by the back, by the belly, by the head, or by several other parts. A certain degree of compression, excited by the organs of the mother on the very tender embryons at the time of conception, or soon after, may occasion these monstrosities. In other cases, not less frequent, the twins are so identified, that several organs wanting to each are replaced by organs common to both. In the former case, the monstrosity is owing to a cause purely mechanical, and, in the latter, to a radical vice in the organization of the germs. To one or other of these causes we must necessarily have recourse for the explanation of the phenomenon which forms the subject of report. Thus in the case of Bissieu, either one of two separate germs had penetrated the

other in consequence of some mechanical action, or, by some primitive disposition, of which it would be as difficult to give an account as of every thing else connected with generation, they have always existed in the same way in which they were afterwards observed.

" One of these explanations being admitted, the existence of a fœtus in the abdomen of another individual is no longer so very surprising, and the sex of that, who has so long performed the function of mother, becomes nearly indifferent. This fœtus may be compared to the fruits of extra-uterine conceptions. In fact, to whatever part of the abdomen the fecundated germs attach themselves, their mode of nutrition is the same: in every situation they absorb their nourishment by their own vessels; they grow till the term marked by nature for their expulsion; and if they cannot be expelled when this term arrives, they putrify, are converted into fat, shrivel, ossify; or they grow till, by irritation of the neighbouring parts, an abscess is formed, through which they may be expelled. This, in some measure, had taken place in the present example; the sides of the cyst enclosing the fœtus, as in other cases of extra-uterine gestation, had inflamed; the inflammation had extended to the intestine; the partition which separated the two cavities had been destroyed; a communication had been formed between the cyst and the colon; pus and hair had been passed by stool; and a complicated phthisis had finally put a period to the patient's sufferings.

" Had the fœtus been placed nearer the surface, the cyst would not have opened into the intestine, and this phenomenon, without any change in its nature, would have appeared less extraordinary.

" This fœtus must have been nourished during the whole life of the individual, who may be considered as its brother; the preservation of its body from putrefaction, and the circulation of blood through its organs, leave not a doubt as to this point. The want of the organs of digestion, of respiration, generation, &c. form no objection to the life of the fœtus, since these organs simply nourished in ordinary fœtuses, do not exert their functions till after birth. But the life of this fœtus consisted necessarily of a small number of functions, on account of its particular structure; the organs of circulation alone performed all that was necessary to the life of the other parts. They received and returned the blood from the mesocolon to the fœtus, and from the fœtus to the mesocolon."

LANCISI'S *Work on the* NOXIOUS EXHALATIONS *of* MARSHES: *Published in Latin at Rome about one hundred years ago, and translated into English by* SAMUEL L. MITCHILL, *at Washington, during the second session of the ninth Congress*, 1806—7.—(*Announced in our 2d Hexade, vol. 4. p.* 304.

TRANSLATOR'S INTRODUCTION.

[THE celebrated author of the following work is also the writer of five distinct Histories of distempers that at different times and places prevailed in the Ecclesiastical State. They were composed for the purpose of demonstrating the power of *marshy grounds* when acted upon by a summer's sun and by warm winds, to excite pernicious fevers. The facts afforded by those masses of filth and impurity which are found in the Italian soil around Rome, are highly instructive to the people of North America living in the neighbourhood of New-York, Philadelphia, Baltimore, Norfolk and Charleston. The sufferings of the inhabitants of Italy, from the popular diseases that have locally arisen among them, surpass infinitely every thing of the kind hitherto endured by the people of the American States. Lancisi was physician to Pope Clement XI.

His first Treatise is on the Epidemic at Rome. It is therein contended that by the neglect of the surveyors and overseers, rain and river water collected in the ditch of Adrian's Mole, called the Castle of St. Angelo, and there contributing to the putrefaction of the substances centering in that spot from the surrounding meadows and drains, spread sickness and destruction around the region of the Vatican, through the Leonine district and toward the Neronian meadows.

In the second, he shews that river water stagnating in ditches and openings, and containing in it macerating hemp and flax, almost desolated Civita Vecchia by their joint putrefaction.

Thirdly. At Bagnarea, not only fresh, but mineral waters, dammed up during the summer by the fall of a hill, acquired a noxious quality which produced extensive mortality among the people.

He has written in the fourth place on the sickness at Pisaro. In that place the fluids of the streets and the filth of the privies uniting and emptying into a common canal, were deprived during the summer heats of their accustomed sup-

plies of running water; in consequence of which they degenerated into extreme offensiveness, which not being removed, engendered the most fatal mischief thereabout by their pestilential exhalations.

The fifth disquisition is on the epidemic fever at Ferentia. There a collection of fresh and of mineral waters bursting from their springs at certain times of the year in greater quantities than usual, were made to stagnate for want of sufficient drains or outlets. They therefore overflowed the adjoining fields, and diffused stench and destruction over the neighbouring spaces, and particularly the low grounds. Every one may thence discover with what care and pains corrupting water ought to be guarded against; lest its exhalations vitiate the atmosphere, and infect it with misery and death.]

OF MARSHES AND THEIR EFFLUVIA.

CHAPTER THE FIRST.

Derivation of the word Marsh.

I. A MARSH is by Varro said to be so called because the waters in a marsh have but little depth, and are extended over a broad surface. Hence in Hydrostatics a marsh is also stated to be a wide, but shallow collection of waters, which although it sometimes receives a river into some part and discharges it again, is nevertheless, in the greater part of its circumference, and particularly near its banks, overgrown with mosses, rushes, and reeds, by which it is beset to such a degree that it remains almost motionless, until it is agitated by the winds. It has hence happened, that the waters of rivers and lakes, in places where they stagnate and produce plants, have in common acceptation been understood to be marshy. Some derive the word Palus, a marsh, from the Greek παλαιος, old, because marsh-water has really been long confined there. Παλαιος itself is a word derived from Παλαι formerly and of old. Vossius brings it from the Hebrew בלה *old*, or בלה *to be of old standing*. Scaliger and Nunnesius trace the origin of Palus to the Doric Παλος used for Πηλος, which signifies *mud;* because every marsh is muddy. Guichart derives Palus from the Hebrew word, אדבל a stream, a river, or even according to Hieronymus a marsh, with a small syllabic alteration.

II. Lest however it should be thought we lose our labour in tracing the root of a word, there is a propriety in remarking here, that much aid is given to the ensuing work from these etymologies of the word Palus or marsh. For marshes consist of waters which are connected with the external and adjoining air, are generally of wide diffusion and of little depth, with very trifling motion, and usually abounding in filth and mud: they also contain multitudes of insects, seeds and vegetables (which are thence termed *palustres* or *marshy*) and are highly prone to corruption and stench during the summer. According to this definition, the Mæotis, although commonly termed a Marsh, is by no means so in fact; since besides its great depth, it receives many rivers, exhales no bad odour, and enjoys uninterrupted intercourse with the Mediterranean sea.

III. But, to avoid fatiguing our readers with the too frequent repetition of the same word, the terms, marshes, pools and ponds, provided they contain stagnant and filthy waters, are employed to express the same idea. And this course is pursued in spite of all that Jo. Boccatius has written to the contrary; for he in making a palpable distinction between Palus and stagnum has shewn himself more a grammarian than a philosopher. In this treatise, therefore, the author includes under the denomination of marshes, all ditches, sinks, puddles, lakes and other excavations of the earth, provided they have imbibed foul and putrefying liquids and contain an ill-flavoured mud. For Fortunatus Fidelis has well expressed it when he says: *That those are not the only marshes which contain water plentifully and perpetually, and detain it in a sluggish condition; but that also the name extends to clayey and muddy lands, and those whose soil is constantly wet. For these places render the adjacent air, thick and dark.*

IV. This doctrine is corroborated by the observations of Charles Leigh, in his Natural History of Lancashire, as we find them in the Leipsic Transactions; for this diligent writer observes, *That marshy places are a collection of leaves, seeds, flowers, stems, herbs, roots, fruits,* &c. all of which he says he has discovered by aid of the microscope; and these natural bodies sometimes grow and multiply, and then again rot and decay. I am not certain from my recollection whether this author takes notice of the numberless insects which inhabit marshy places; but he by no means proves to the satisfaction of his reader that the trunks of trees, and exotic

fruits dug up in England, though they never grew there, are proofs of the Noachian Deluge. Since foreign seeds and woods, might have been carried thither in many ways, as by birds, or by winds, or in the course of commerce and merchandize. And the age of the universal deluge is farther removed from ours, than England is from the regions of Europe where pines are natives.

CHAPTER SECOND.

Of the atmosphere, terraqueous exhalations, and of their innocence or noxiousness.

I. Among experimental philosophers, it is no longer a matter of doubt, that the surrounding air which we call the atmosphere is a fluid, thin and porous body, not so specifically heavy as the earth, and naturally moveable, exceedingly compressible and elastic. But since air is always forced downward, it is more dense and heavy in low situations, and more rare and light above. And by virtue of its weight and pressure upon the pores as well of the water as of earth, the air itself is pressed in all directions, and associated for the best of purposes with the organic and inorganic substances which it contains.

II. These are the qualities of elementary air, if I may so call it, since they are every where very much alike. Since this very air, however, is interposed between the celestial, watery and earthy bodies, it possesses a constitution of a corresponding nature, according to the various conditions of places. And therefore as the air borrows ether, motion, light and celestial fire from above, so it every where admits the particles of many kinds, watery, saline, earthy, volatile and oily from all parts of the terraqueous globe, which fire or external or internal motion expels and exhales. It has hence happened that air has by some been called a sponge, a chaos and an abyss, since salts of totally different qualities can be extracted from it by means of their particular matrixes as the chemists call them.

III. The atmosphere therefore is a fluid and transparent body, surrounding our globe and resting upon it. This mass of vapours consists of three principal parts:

1. Of a most fluid, active and penetrating ether, which is emitted from the sun and propelled to our globe. To this the moderns ascribe, and justly too, the intestine motion

and elasticity of substances in mixture. For all bodies whatever are surrounded, pressed and filled by ether; and this agent is continually subjected to a twofold motion, to wit, a whirling and a direct one, so that although it is propelled from the sun to the earth, it always returns in an invariable proportion.

IV. 2. Of an immense collection of particles, of a figure in all probability round, which in their approach to contact, leave pores and spaces between them. These particles are permeable to the passage of ether through their flexible substance in a spiral course from one pole to the other. Hence it comes to pass, that undergoing compression either by their own weight or by external force, they assume more or less of a spheroidal figure, in which both the internal distances of the spiral revolutions and the external pores between one spherule and another, are narrowed and lessened by condensation. Wherefore the ether which passes freely and easily through their open and gaping spaces, undergoes some retardation from the narrower limits in which it is confined. This restraint it strives to overcome by every possible means, in dilating the spiral revolutions and the intermediate pores. And by these operations of dilatation and distention are produced the whole elasticity of bodies.

V. 3. The atmosphere is composed of a multitude of extremely small fragments, abraded from watery and earthy bodies by the powers of the sun, ether, subterraneous fires, salts of various kinds, and of other bodies in motion. These are often accompanied by the seeds of plants and eggs of insects wafted by the winds. They are all supported between the particles of air, and in the interstitial spaces, until by mutual approach and various combination, they acquire so much bulk and weight as to overcome the motion, adhesion and gravity of the air, and be borne downward; or what amounts to the same thing, those very fragments of bodies, fall sensibly or insensibly toward the earth. Hence proceeds that universal circulation of ascending and descending vapours, exhalations, clouds, dews, mists, rains, and in one word of effluvia, which will continue while the world endures.

VI. From this various and confused mixture of particles balanced in the atmosphere, and from their different motions and the aspect of the heavens, proceed not only all the phenomena which are called meteors, but also the various other properties of air, such as its cold, hot and moderate temperatures; its thinness or thickness; its healthiness, insalubrity

or middle quality. And as the four obvious qualities of air, heat, cold, dryness and moisture are derived from the situation and peculiarity of places in relation to solar exposure and to the easy or difficult approach of the southern and northern winds; so its rarity or density, healthiness or insalubrity proceeds from the different meeting of other particles which the atmosphere receives from the bodies and regions which are beneath it or adjoining to it. As Lucretius has most knowingly said,

> ——————I heretofore have taught
> That things with vital elements are fraught;
> And how, through all the atmoſphere and ſeas
> Float principles of death and dire diſeaſe:
> When theſe by chance a wild commotion wakes,
> The air a morbid conſtitution takes.
>
> BOOK 6.

But although in any form of atmosphere, its healthy or morbid quality does not depend, as far at least as the human race is concerned, upon the same mixture and motion of particles; it is however useful to know generally what combination and modification of the elements render the atmosphere mild and healthy, and what make it inclement and sickly.

VII. The requisites to a healthy atmosphere are, 1. Moderate dryness and frequent clearness. 2. A proper degree of mobility, agitation and circulation, which as it keeps the water from corruption, also renders the air free and clear. This agitation principally depends upon the openness of places, the aspect of the heavens, and the intensity of light, giving the aërial fluid an opportunity to move with little impediment. 3. Exemption from particles furnished by a soil abounding with filth and noxious minerals; or proceeding from marshy waters, plants or venomous animals. But the contrary of all these, and such as are rather attenuated, balsamic, volatile and subacid, and which when duly combined and associated, form the nitro-aërial salt of Mayow, and the universal sulphureous salt of Hoffman. By these means that greatest principle of healthiness in the air is cherished, to wit, the lively, pervious and rapid action of the ether, by which the fluid air vegetates as if it was endowed with life. Hence not only the solid parts of our bodies, derive the necessary tone or elastic power, but the fluids (by the interposition of particles of air between their molecules) attain their free motion, their readiness to pass off by exhalation, easy

transmission through the most slender tubes, and their quick transformation by the secretory organs, functions in which the whole of life and health consists.

VIII. On the other hand, the atmosphere is rendered unhealthy by, 1. immoderate drought, or too much moisture, which Hippocrates has so much condemned as opposed to serenity. 2. A sluggishness and cohesion of the particles of air, preventing free motion of them, among each other. This state of the atmosphere is induced by the low or sunken nature of the place, surrounded by mountains, and secluded from light and from winds: whence it happens that both the particles falling from the atmosphere and rising from the earth, of whatever kind they may be, meet each other and cling together in the surrounding air. 3. By effluvia of a thick and gross nature and little disposed to volatility; or which are too acid, alkaline or of other peculiar or poisonous qualities. By these means the pores of the air being narrowed and partly blocked up, it becomes very difficult for the pervading ether to pass through them. Hence, arises a diminution of strength, elasticity and energy in the solid parts of human bodies. The fluids cannot continue their functions as before defended. In short, many inconveniences beset and disturb the concoctive, circulating and secretory systems, fairly to be ascribed to the distemperature of the climate.

IX. But, to return from the subject at large, to that part which we have undertaken to discuss, that is, to marsh-effluvia, we call those unhealthy, which having been elevated by the rays of the sun or their own intestine fermentative motion, and then wafted away by the winds, especially those from the south, work great mischief in our constitutions. This they effect partly by obstructing the outlet and discharge of the perspirable matter; partly by carrying off what ought to remain in the body; and partly (a matter of special interest) by introducing many things and mingling them with the blood and spirits; and even doing singular damage to the solid parts.

CHAPTER THIRD.

Facts shewing that the healthiness of places arises from a dry soil, and unhealthiness from one that is marshy and offensive.

I. Frederick Hoffman has collected with no less learning

than diligence, the facts from various writers, demonstrating that in Egypt, Greece and Germany a dry soil is connected with a healthy air, and that by a marshy and filthy surface it is rendered unwholesome and even pestilential. Hippocrates seems to have hit upon the same thought where he writes of the atmospheric constitutions, " dry seasons are univer- " sally more healthy than wet, and attended with *less morta-* " *lity.*" And we, taught by the calamities of the noble and crowded cities of Italy, which have been desolated by the marshes alone, behold with our own eyes the mischiefs occasioned by stagnating waters, without looking abroad for the reasons or inquiring for the evidence of other persons. Aquileia, for example, formerly in a most flourishing condition from the number of its inhabitants, even so much as to merit its advancement first to a metropolitan and then to a patriarchal dignity, scarcely retains at this day the remains of houses or any traces of its former splendour; and the sole cause of its overthrow has been the contamination of the air from undrained waters. The city of Brundusium formerly so famous, is lamentably mentioned by Antoninus Galatheus in words which by reason of their aptness we quote: *Moreover cities situated in a healthy climate have been destroyed. Cities indeed like men have their vicissitudes. But the neglect of its inhabitants has been the ruin of Brundusium; for had outlets been made for its waters, it would never have acquired such an unhappy distinction.* Virgil sings of the emptiness of the city of Acerræ, whose population had been thinned by the sluggish course of the river Clanæius, Et vacuis Clanæius non æquus Acerris.—So many other cities and villages have suffered the same fate that it would be tedious to describe their funereal decline. Any one may may however satisfy himself by a survey of the shores of Italy and the regions near the Mediterranean sea, that a pure atmosphere is enjoyed by the Insubrians, Ligurians, in a great degree by the Etrurians, the Neapolitans, the Bruttians and the Salentines as far as Apulia, for this principal reason, that in those regions the waters rush to the sea in torrents or freely-flowing rivers; and to this it may be added that the rocky foundation of the mountains and the stony stratification of the shores hinder the moisture from soaking far through the earth and forming thereby a damp soil.

On the other hand, during the greater part of the summer and autumn a malignant atmosphere invests the inhabitants

of Pisa, the maritime portion of Sienna, the Roman territory especially at Portus, Ostia, Terracina, and Fundi; as also the people of Salerno in Picentum, almost all the flat country of Apulia, lower Romandiola, Comaclenses, and some districts of middle Italy, as Viterbo, Volsci, Fulginates, Brachianenses and some others. This sickening quality is derived from the great quantity of water employed to macerate flax, or promote the growth of rice; spontaneously collecting in ponds or through the negligence of the inhabitants overspreading the surface of the land. In short, the person who wishes to acquire a more full knowledge of these particulars may see them in my dissertation on the qualities of the Roman climate, which has a natural connection with the present subject.

II. On the other hand, by the bounty of their rulers the inhabitants of Pesaro have breathed a purer air, since they drained their marshes. For Collè and Lusitanus declare that the atmosphere of that region was rendered healthy in consequence of carrying off the watery humidity, by the command of Francis Maria the first duke of Urbino. Before that time Leander Alberti testifies that very few indeed of the inhabitants exceeded or even reached fifty years of age; whereas now a great many live beyond it, among whom I make honorable mention of Julia Albana the aunt of his holiness Clement XI. who though weakened by declining years, still preserves a firm, acute and vigorous understanding beyond her eighty-fifth year. Let the inhabitants in the mean time beware, lest through a neglect of their water-courses, they should be again assailed by their old adversary.

III. While I am writing this, I am favoured with an epistle from Rosinus Lentilius, counsellor and first physician to the duke of Wirtemburgh. From this excellent friend, who is equally influenced by love for his country and his profession, I received the following communication: *What you are preparing on the noxious exhalations of marshes, cannot but be entertaining and useful. No one can doubt of the great importance of the subject. This I can illustrate by a single remark: Stutgard, the residence of my most serene Prince, is surrounded by mountains on every side except the east, where there is a sort of plain stretching about an hour's walk towards the river Necker. Near the wall of the town, on the eastern side and near that plain, was formerly a fish-pond or pool of several acres in extent. For many years our metropolis has been notorious for its obstinate quotidian inter-*

mittents, which being scarcely epidemic, but only endemic, have been commonly known by the name of the Stutgard fevers. It happened about fifteen years ago that this pool was drained and converted into a most beautiful meadow. From that time, intermitting fevers have become so rare that they never once have deserved the name of epidemics, but only appear in sporadic cases here and there, and are hitherto much more easy to cure. Hence it appears that the fevers arose from the filthy effluvia of the pool, wafted by the eastern wind over the town, and confined there by the inability of the wind to sweep them quite away on account of the mountains adjacent. There are at present some smaller ponds around the city overgrown with moss, exceedingly filthy and inhabited by frogs and toads. Into these, hollow wooden trunks have been inserted, to serve for subterranean canals or aqueducts. But although I frequently complained of the soaking of these perishable tubes in such unclean water, when I performed the duties of health officer at Stutgard, I could get nobody to listen to my remonstrances. This testimony of this respectable professor is the more important, inasmuch as it proves that the exhalations from water are noxious even in these regions, wherein, as will be shewn in our fifth chapter, fluids are less prone to corruption.

IV. But while these occurrences are stated, it must not be understood that the neighbourhood of marshes is the sole and only cause of atmospheric contamination. For it is not to be denied, that unburied carcases, the sudden disclosure of the recesses of the globe either by earthquakes or by art; burying places; holes where grain is putrefying; heaps of filth and offal, especially from kitchens; breezes and winds loaded with mephitic vapours; and other agents of an analogous nature, may render a climate sickly and pestilential. These things we have thought proper to point out to those who are in search of knowledge, although we have not thoroughly investigated their causes; since it is necessary before we attempt to explain any thing, to assure ourselves in the first place, that it is a fact in nature.

(To be continued.)

Observations *on the* ulcerated tonsils *of* children.

By Dr. Felix Pascalis, *Physician of the City and County Prisons, Consulting Physician of the Alms-House.*

PRACTITIONERS must be aware of the difficulties to be met with in the treatment of certain diseases of children; especially of their various cutaneous eruptions, sore head, sore eyes, the purulent discharges from the ears, and their suppurated salivary glands, with hard swellings on the neck, which are frequently taken for symptoms of scrofula.

Under such apprehensions, and after repeated disappointments and failure of different modes of treatment, I was led to examine the mouth and pharynx of my little patients, when in almost every instance I discovered that their tonsils were considerably ulcerated. If I then could apply topics of some efficacy, if I attempted gently to scarify those glands, or to inject an astringent fluid, I frequently was gratified with the abatement of other symptoms, or of the apparent principal disease, which I was called upon to remove. I further discovered, that in many cases those ulcerations were malignant and also fistulous. I was obliged to apply caustics, and to use my probe, which reached fungosities and large flakes of white matter that remained confined between the glands and the foldings formed by the edges of the *velum palati.* In this stage of the disease, I must reasonably conclude that it was not contemporary nor symptomatic with the other existing ailments, and that it had preceded every affection complained of, with many other effects which already had been varied or superseded by some new morbid appearances.

I remember two memorable instances of purulent discharges from the *meatus auditorius*, one of which terminated fatally with a caries of the bones of the ear. It could not be but through a long period of time that the ulceration had progressed from the tonsils, all over the pharynx and behind the nostrils, had reached the eustachian tube and destroyed the tympanum, so that air from the trachea could be forced out through the ear. These and many other facts made me suspect at last, that children were generally subject to this internal ulceration, the progress of which would in time extend to all the adjoining organs, and constitute all the various morbid appearances which I have enumerated. With this caution I applied my observations to every case, and to every

possible degree that could be offered. My suspicion was at last converted into a doctrinal opinion, maturely formed and authoritatively supported.

It is remarkable, that in no degree whatever of this disease, I was able to discover by enquiry, that the little patient had previously complained of any pain in the throat, nor that he had shewn the least difficulty of deglutition. I never could trace the existing ulcer to an anterior period of inflammation, attended with fever, as from an acute attack of angina, &c. This is an evident proof that those ulcerations were gradually formed, that they originated from a small erosion or from some sloughed pimple of the membrane that covers the gland, and owing to some continued morbid cause, progressively increased to the great extent and malignant aspect I have seen them acquire.

I should think it superfluous to enumerate all the cases of my private practice which have led me to that train of observations. But impressed with the importance of the subject, and in order to place it beyond the smallest apprehension of doubt, I will now candidly relate by what simple means I have lately ascertained the occurrence of this disease in relation to the general symptoms I have enumerated.

I desired the Resident Surgeon and Apothecary of the Alms House, (Dr. Creed) to produce indiscriminately and without previous examination, a certain number of children affected with sore eyes, sore head and ears, swellings of the neck, eruptions, &c. Depending very much upon the judgment and knowledge of Dr. Creed, I requested that he should examine severally and point out himself the appearances of the tonsils and pharynx, when the following results of twelve out of fourteen cases were ascertained.

No. 1. A girl aged 5 years, with inflamed conjunctiva, bordering on ophthalmia, several clusters of dry and scabby eruptions on her head: both tonsils ulcerated.

No. 2. A girl of 4 years, with the same eruption on the head, having dry pustules on her body, surrounded with red spots: both tonsils ulcerated.

No. 3. A boy of 3 years, scabby head: one tonsil nearly destroyed, the other much ulcerated.

No. 4. A boy aged twenty five months; his head all covered with tinea capitis: both tonsils ulcerated.

No. 5. Another boy of about the same age, same symptoms and appearances.

No. 6. A girl of 5 years, with an albugo in the middle of each transparent cornea: tonsils enlarged, deeply ulcerated.

No. 7. A girl aged 8 years, much marked with the small-pox, with a few fresh red and scabby pustules; her salivary glands are enlarged and hardened; she has a large *leucoma* on the right eye*: both tonsils ulcerated.

No. 8. A boy of 7 years, who was said to labour under an obstinate cough: we could only see one tonsil ulcerated.

No. 9. A boy, 3 years of age; he has weak eyes and seems to avoid the light; eruption on the face and the lips; salivary glands much hardened: tonsils much enlarged, deeply ulcerated.

No. 10. A girl of 4 years, with swelled parotids: enlarged tonsils, one only ulcerated.

No. 11. A boy of 9 years, tinea capitis, lippitudo of the eyes: enlarged and ulcerated tonsils; excoriated pharynx.

No. 12. A boy 10 years old, very fat; swelled parotids; he complains of pain and difficulty of deglutition: enlarged and ulcerated tonsils, pharynx the same.

Two other children were offered, but could not conveniently be examined.

Thus far: it would have been superfluous to seek for a greater number of subjects, although in this given number I did not meet with each distinctive case of disease with which ulcerated tonsils can exist, and which had been often observed by me. But lest this affection could be supposed endemial or epidemical in the alms-house, I applied to Mr. Wm. Smith, the principal teacher of our celebrated free school, where about 240 children were assembled. Having explained to him the object of my enquiry, he kindly permitted me to examine as many as I selected.

No. 1. A boy of 9 years; albugo on the left transparent cornea; ulcerated tarsi: both tonsils ulcerated.

No. 2. A girl 11 years old; ulcerated tarsi, inflamed conjunctiva: ulcerated tonsils.

No. 3. A girl of 7 years; swelled salivary glands: deeply ulcerated tonsils.

No. 4. A boy 9 years old; hardened salivary glands: deeply ulcerated tonsils.

No. 5. A girl of 14 years, with weak eyes, and *lippitudo;* pale complexion: both tonsils ulcerated, and one nearly destroyed.

* We could not ascertain in this case, whether the leucoma originated from the small-pox; but it was so large as to cover the whole transparent cornea; and it must have been aggravated by the existing affection.

No. 6. A boy aged 5 years. He discharges purulent matter from the meatus auditorius; the external ear is sore and scabby; has tetters on the face; swelled salivary glands: enlarged and ulcerated tonsils.

No. 7. A boy 7 years; pale complexion; indurated salivary glands; ulcerated tonsils; membrane of the pharynx visibly destroyed.

For a better explanation of this malady, permit me to add some details and circumstances, which although unnecessary to well informed medical readers, will enable them notwithstanding to improve and correct, if necessary, the description I have given of it.

The mouth is divided, as it were, into two chambers, the anterior, and the posterior called the *pharynx*. This is nothing more than a kind of receiver, much like the wide part of a funnel, directly placed on the œsophagus. The division is made by a kind of curtain, *velum palati*, which is of great mobility, to draw itself up, or to close perfectly the anterior mouth, and confine in it the aliment for the purpose of mastication, lest it should partly escape into the nostrils and interrupt respiration. When perfectly drawn down against the root of the tongue, the *velum palati* mostly performs the act of deglutition or swallowing, by strongly pushing the morsel chewed, or the fluids introduced, against the pharynx, which in its turn contracts and pushes the same downwards into the stomach.

When a little drawn up, this curtain can admit the whole column of air in expiration from the lungs, and thus the voice is emitted through the mouth, essentially to constitute the organ or act of speech. It is circular on each side and presents in the middle of it a suspended pap called uvula. This is a kind of elongated fulcrum for the lateral muscles or strings of the curtain; indeed the *levator palati* bears upon the *azygos uvulæ*.

When the mouth is opened, the *velum* is drawn up and its edges form two foldings, on each side, which the French anatomists call the pillars of the palate; they are angularly connected as they approach to the uvula, and pretty much divided on their basis. It is between these foldings, and a little lower than the level of the tongue, that the glands called *tonsils* are situated on each side to secrete a considerable portion of that fluid which is necessary for the functions of the mouth. They are easily seen if while the mouth is well opened, opposite the light, the tongue is gently depressed on the lower jaw, by the finger or by the handle of a spoon.

—The ulcer which we wish to describe, appears at first as an indenture or corrosion of the membrane that covers the tonsil. Its cavity is afterwards filled with fungous granulations interspersed with thick mucus and flakes of purulent matter, and they are easily made to bleed, if touched by a probe or by some hard substance. I should not omit noticing that whether much or little ulcerated, a tonsil is frequently larger than natural, and is seen protruding out of the foldings with uneven surfaces and distinct holes, mostly containing matter or a spongy kind of proud flesh, in a more advanced stage. Whether the tonsils are enlarged or not, the whole palate and pharynx appear very red, and above or below the glands the edges of the velum are indented: the ulceration has perhaps reached the uvula, and destroyed the membrane of the pharynx, and masses of white matter and pus are seemingly adhering on many points of those injured surfaces. The tonsil may be partly detached from its connecting parts and a probe run around deep erosions or fistulous cavities, in which I have sometimes found flakes of hard matter and little bits of the aliment retained when passing and confined in them. I never met in children the tonsils totally destroyed, as has been the case in adults, from other causes; but I have seen them perforated, or totally denudated, very much enlarged and all over ulcerated.

Among the many serious consequences of an internal gnawing ulcer, the most pernicious is that of the sanious or purulent matter which it produces; for if it is not immediately washed off, it must be taken up by absorption and transported to some other parts of the body, on the skin, for instance, where it creates cutaneous eruptions, or it will remain in the circulating fluids, cause hectic periodical fevers and other morbid symptoms. On the other hand, the many points of ulceration in the mouth constitute an organic disease, so far as the aliments thrown into the stomach are necessarily contaminated by purulent matter, and so far as the ulcers at last extend all over the pharynx, and the membrane of the nostrils, even into the eustachian tube, progressing afterwards in the ear, and injuring more or less the small but all important parts of that organ. The absorbed matter is also thrown on the eyes, on which it exercises the most cruel ravages, and finally obstructs all the system of salivary glands which become exposed to frequent suppuration, and leave moreover the most unpleasant scars.

Besides these dreadful effects, permit me to call your attention to an alarming consequence, as far as it can be proved to be connected with or originating from ulcerated tonsils. While we lament the great proportion of deaths by consumption which our weekly bills of mortality present, making every proper allowance for undefined diseases and cases of extreme debility, which have been comprised under that denomination, we naturally attribute the frequency of phthisis pulmonalis to the severity of our climate and changeableness of our seasons. But this is not all, and there may be other causes. For one of them, I feel fully satisfied, may be traced to this affection of the tonsils; it is the *phthisis laryngis*, the ultimate effect of an ulceration which has progressively extended to the pharynx and œsophagus, to the epiglottis, and at last has reached the larynx and trachea. My practice has offered no less than six cases of *phthisis laryngis*,* within the last twelve months, which always proved more rapid and more irremediable than the consumption of the lungs. Other practitioners have undoubtedly witnessed its frequent occurrence, if they please to recollect its characteristic symptoms of extreme hoarseness and even of destruction of the voice, of great difficulty of deglutition which really subjects the patient to starvation. This complaint is unconnected with any affection of the lungs, and I have seen it often existing without the least symptom of phthisis pulmonalis. Perhaps the cough is not so frequent, and it takes place by paroxysms, chiefly in the night, but the patient raises great quantities of purulent matter often tinged with blood. This matter is easily thrown off from the extensive surfaces through which it is secreted. Hence it happens that, different from phthisis pulmonalis in which the matter is confined in deep recesses of the bronchiæ, absorbed and mixed with circulating fluids, and creating hectic fever, the phthisis laryngis offers the remarkable circumstance of a natural pulse, although febrile, in its most advanced stage. The lying posture is not much subject to inconveniency, nor does the patient require to have the head and thorax erect. The progress of debility and exhaustion is nevertheless more rapid, owing to want of nourishment.

* I am not acquainted with any particular treatise nor description of this disease, and remember nothing else but an inaugural thesis on *Phthisis Laryngis*, by Mr. A. Sauvée of the medical school of Paris, 1808.

Before I terminate these remarks, I must express my regret at not being able as yet to point out the causes which concur to produce this ulceration of tonsils among children, who are not exposed to the dangers which might account for them in adults. The next and still more interesting object would be to establish both prophylactic and curative means. I have already tried several under one simple indication, that of procuring the healing of the tonsils. I must leave to time and more fortunate practitioners the desideratum of rescuing children from this baneful evil, or of removing it effectually as soon as it is found to exist.

Gentle and repeated emetics cause a retroversion in the affected parts, and prove to be the best means for cleansing those ulcers. Small doses of calomel induce a greater degree of irritation in the mouth, which should therefore be depended upon to soften indurated glands on the edges of the ulcers; but above all, astringent gargles, injections into the cavities performed with a small curved syringe, scarifications, and caustic applied with all necessary caution, remains the best resource which we can derive from the most practical doctrines of surgery.

Analysis *of the* Bark *of the* Magnolia Tripetala *of* Virginia *and the* Carolinas. *By* David Bailie Warden, *Esq. Consul General of the United States at Paris, &c. &c.*

Forty-eight grammes of this bark, well dried and preserved, were macerated during several days in *alcohol*, at 40°. The liquor had a yellowish colour, which gradually became deeper and deeper approaching that of red. This first portion was decanted and filtered: a new quantity of alcohol was poured upon the bark. The liquid products were distilled in a proper apparatus. The alcohol employed had a slight aromatic odor, but did not precipitate by water. When the greatest portion of the alcohol was distilled, the evaporation was continued in an open capsule; a residue was obtained, of seven grammes, which exhibited all the

characters of resin except that it had a glutinous consistence, and a sharp taste though not very bitter. It is presumable that it preserved a little volatile oil in combination.

After having exhausted the bark of the magnolia by alcohol, it was submitted to the action of water, to which it communicated the following characters, viz.

1. A sallow colour; almost no taste, nor odour.
2. Gall-nuts produced an abundant precipitate.
3. Glue (colle forte) produced a slight change.
4. The sulphat of iron, at *medium*, without precipitation, gave instantaneously a deep green colour.
5. Alcohol produced large white flakes.
6. Ammoniac gave a deeper colour to the infusion, without causing a precipitation.
7. Lime-water, the nitrat of silver, and muriat of barytes did not create any change.
8. This infusion was neither acid, nor alkaline.

It is evident, from these experiments, that the bark of the *Magnolia Tripetala* resembles certain species of Peruvian bark, analyzed by the celebrated Vauquelin.

The watery infusion was evaporated at a very mild heat. An extractive matter remained, which detached itself in scales, of an insipid taste, though somewhat sugary, that did not entirely dissolve in water. By distillation there was produced an acid liquor, and not alkaline, as was at first suspected by the precipitate which the gall-nuts produced in the infusion.

The bark of the magnolia, separated from all the principles soluble in alcohol, was digested in diluted nitric acid. This liquor assumed a pale yellow colour. It was filtered and evaporated, to separate the superabundant acid, at least in part. There were separated 4 decigrammes of a gritty powder which was phosphat of lime.

The liquor from which was separated this phosphat gave an abundant precipitate by the oxalat of ammoniac, the concentrated sulphuric acid, the acetat of lead, carbonats, &c.

Carbonat of potash was then poured upon it, to separate the lime and acid with which it was united. The liquor was then filtered anew, and after being saturated, acetate of lead was poured upon it; a considerable precipitate was formed, which burned, when thrown on lighted charcoal, leaving small globules of lead that separated by the filter. These were washed, and diluted with water to expose them to a current of sulphurated hydrogen. This water, which

contained a free and pure acid, after being freed, by ebullition, of the excess of sulphurated hydrogen, presented the following phenomena.

1. An abundant precipitate by the acetate of lead, which was very little soluble in an excess of acid, and very soluble in alkali.
2. Lime-water did not produce any change therein, the liquors being diluted.
3. The sulphat of iron did not produce therein any precipitate, nor was there any produced by alkali, which was afterwards added.

In short, this vegetable acid, having the property of forming, with metals, triple soluble salts, led me to suspect the presence of tartarous acid, which was confirmed by a comparative examination of these two acids.

To terminate the examination of the magnolia, the ligneous portion was burned, which had resisted the successive action of alcohol, water and acid. Four decigrammes of ashes were obtained, which were not alkaline, and which contained only a small portion of iron, some atoms of phosphat of lime, and silex.

The different products of magnolia are then as follows.

1. A particular resin.
2. Tannin.
3. A substance which has the property of combining with gall-nuts, and which appears to be little animalized.
4. An extractive gummy matter.
5. Tartrite of lime, and phosphats.
6. A small quantity of iron and silex.

The *Magnolia Tripetala* is thus characterized by Michaux, in his *Flora Boreali-Americ.*

M. foliis amplioribus, oblonge subcuneato-obovalibus; junioribus densissime holosericeis: calyce reflexo.

Obs. Petala solito novem.

Hab. à Virginia ad Carolinam.

Magnolia (umbrella) foliis lanceolato-ovatis umbellatim confertis patentissimis, petalis exterioribus dependentibus.

LAMARK. ENCYCLOP.

Doctor Savary, of Paris, to whom I gave a portion of this bark, has communicated to me the following account of its medical effects.

" A workman of the Faubourg St. Marceau was attacked last year, with an intermitting fever, which assumed some symptoms of a bilious kind. I gave him a vomit, without administering any other medicine, until three or four fits had taken place which shewed that the fever was regular. I seized this occasion of trying the effects of the bark of the *magnolia.* I caused the patient to take a decoction of half an ounce, in two pounds of water reduced to one half, and this before the hour when the fever was to return. It was retarded for about two hours; the cold fit instead of continuing, as it had done, for an hour, lasted only a fourth of that time. The heat which succeeded was moderate, and the perspiration abundant. Not having enough of the bark for a second dose, I gave him a strong infusion of camomile and a little centaury. The fever, however, returned two days afterwards, and the fits, in force and duration, were similar to those which took place before the administration of the magnolia. I then prescribed an opiate with bark, united with different purgatives, and the fever ceased.—The patient had no relapse."

I have heard that this bark has been prescribed by others as a febrifuge. A bag of it was given to me by Mr. Gamble, of Virginia, who wished to have the opinion of the Paris physicians concerning its effects. He also expressed a wish to have it analyzed, thinking that it might be a very useful remedy for several diseases. Travelling in the back parts of Virginia, he observed that great use was made of it in the cure of fever and ague, syphilitic affections, &c. The knowledge of its medicinal qualities was derived from the Savages. I enclose a specimen of it. Perhaps you may think proper to recommend it to the attention of your physicians.

An ACCOUNT *of the* YELLOW FEVER, *as it appeared at* STABROEK, *in the* COLONY *of* DEMARARY, *during the principal part of the years* 1803 *and* 1804. *By Dr.* WILLIAM FROST, *physician at that place; addressed to Dr.* JEREMIAH BARKER *of Portland, and by him communicated to Dr.* MITCHILL.

(Continued from 2d Hexade, Vol. VI. p. 227.)

THE MALIGNANT FORM.

FIRST STAGE. SOMETIMES the patient was seized in the evening and sometimes in the morning, without any precursory symptoms.* The attack commenced with slight rigors, vertigo, throbbing in the temples, pains in the back, loins and legs, universal soreness of the external muscles. These were succeeded by great heat, violent thirst, but no appearance of sweat, except a partial moisture on the forehead and neck. Gentle delirium, stupor, and comatose affections soon followed. The *face* was flushed and sometimes of a peculiar purple cast. The *eyes* were suffused with redness, full of tears and very painful. The *pulse* was rapid, hard and full; and sometimes gently fell on the impression of the fingers. In some patients the pulse was unnaturally depressed, slow and weak. The pulsations seldom exceeded 100 strokes a minute in the first 24 hours. A sense of pain and *restlessness* tortured the patient. The *breathing* was difficult and accompanied with continual sighs, *jactitation*, &c. A remarkable *lassitude* pervaded the whole system, nor was the patient able to stand. The *tongue* was covered with a white or yellow mucus or coated with a thin phlegm of the same kind; or if the tongue was clean, it appeared of a deep red or inflamed cast. The *teeth* were dry and clean in some instances. The *saliva* at times tasteless, and again salt, bitter or putrid.

Many were seized with continual *nausea*, violent retchings to *vomit*, and tortured with a most *uneasy sensation at the heart* and *spasmodic affections*. Others actually vomited if they took either drink or food, but ejected nothing from

* "When a new comer is seized with a sudden loss of strength and a desire of changing for rest, in every position, without finding it in any, those symptoms which constitute the ENDEMIAL CAUSUS may be expected."

MOSELEY.

But this takes place only in the *milder forms* of the disease: the more *malignant species* do not admit of them.

the stomach, except what they previously might have taken; unless it was a trifle of thin phlegm, somewhat mixed with bile, while the real *septic cause* was left behind.

The *intestines* at this period were so torpid in their motions, that they often required the most drastic cathartics; and even then, it frequently happened, that the torpidity could not be removed without other means.—The *thirst* was not always so intense, as not to admit of allay. *Cold drinks* were called for incessantly, and *cold water* was preferred to any thing else.

Blood drawn was in some instances dense and almost black, and if allowed to stand a little while, was as compact and solid as the substance of liver; and frequently without any appearance of serum on its surface; when in other instances it would be thin and dissolved and of an unusual yellow cast, and sometimes appeared greasy as though oil had been mixed with it. I do not recollect ever to have seen a buffy coat on the blood.

The disease appeared most frequently to be seated in the *stomach*; though sometimes in the *liver*, *intestines*, *head* or the *heart:* producing the most agonizing pains in the abdominal regions, attended with *spasms*, *inflammations*, and at times with a watery diarrhœa of a most fœtid nature, followed by delirium, convulsions and lethargy.

This stage of the fever ran from 24 to 48 hours, *without any remission*, or if there were any remission, it was no more than a slight glutinous sweat, that sometimes appeared in the morning on the forehead and breast. Sometimes, however, the fever obviously remitted either every other day or every day, and thus progressed in a remittent state to the fifth day; at the commencement of which, it changed into the third stage. At every remittent interval the patient gained strength. The more violent spasmodic symptoms decreased; the subsultus tendinum, singultus, convulsions and deliquia animi subsided; the pulse gradually lessened and the febrile heat on the surface ceased.

Frequently after the disorder had raged from 24 to 48 hours, a manifest remission was perceptible in the morning, accompanied with a partial viscid sweat. But more frequently the strength being almost completely exhausted in the first stage, led rapidly on to the second.

Second Stage. In this stage of the fever, the pulsations and *heat of the system* sunk below the natural standard —the *pulse* was fluttering and debilitated; *respiration* was

difficult and attended with *sighing*. Sometimes drops of blood fell from the nostrils and the *pains of the head and tension of the arteries* were diminished, while the *vertigo and pains of the loins* remained in full force. The remarkable *redness of the cheeks, lips and hands changed to* a *livid colour*. The inside of the *mouth and tongue* was coated with a thin yellow mucus or sordes, firmly adhering to the teeth and fauces. Sometimes the *gums*, the tongue, and the whole cavity of the mouth appeared bloody, and blood was also *ejected* from the stomach and copiously ejected by stool.

These symptoms gradually increased, and new ones were added to the train. *Black and bloody pustules* covered the upper lip. If the tongue were moist, it was *black or brown; and if dry, it was rough and of a dark mahogany or lead colour.*

Petechiæ now made their appearance on the neck, breast and inside of the thighs; *great heat* and *burning in the stomach;* and whatever the patient took, he as readily threw up, and frequently vomited without having taken any thing. The *bilious fluid* remained immoveable in some, although the efforts of vomiting were of the most violent kind; while in others, a yellow or green fluid was ejected, and frequently streaked with blood. The *spasms of the stomach* were so violent in some, as to eject the contents of that organ across the room, the distance of ten or fifteen feet.

The *skin* for the most part was dry, or alternately dry and moist. In some cases the skin was dry to so great a degree that it gave no sensations of porosity to the touch: the *heat* gradually diminished and the body became cold, excepting the *region of the præcordia*, which retained its heat, even in the article of death.

The *strength* now sunk continually: an erect posture of the body produced fainting: the *adnata of the eyes* was suffused with a yellow tinge: a *yellowness* appeared about the nostrils, mouth and neck; nausea and vomiting still fatigued the patient.

Where the force of the disease in the first instance admitted of it, and the patient was not exhausted, it passed into the third stage, and in a short time arrived at its boundary. But if the strength were deficient, the second stage might continue 12, 24, 48 and even 60 hours without any variable increase of febrile heat. At evening the horrors and other symptoms come on with increased delirium.

At the beginning of the third or fourth day of the disorder and sometimes on the fifth or sixth, the whole face, neck and breast of the patient assumed an icteroid appearance and suddenly deepened to a true *orange or crocus-colour.* The symptoms of the second stage were now at their height, and the *third stage* of the fever commenced.

THIRD STAGE. In this stage the *nervous affections* increased rapidly; such as *stupor*, *coma* and settled *delirium*, with *convulsions*, *singultus* and *subsultus tendinum*. *Livid spots* thickened over the body and *blood continued to ooze from the nose, mouth, &c.*

The patient complained of a sense of *tightness* and *oppression* at the præcordia: the abdomen became tumid, nor could it be touched without agonizing the sick. The patient now *vomited* a *black*, *bloody* fluid, while the cavity of the mouth, appeared constantly full of similar matter, which was exceedingly offensive in some instances; and very much resembled the *grounds of coffee.* The *stools* were nearly of the same complexion; or at least were composed of a livid mucus nearly black and unaccompanied with fœces. Sometimes *hemorrhages* from the mouth and nostrils occurred, which no powers of art could totally restrain.

A wonderful loss of *memory* occurred in some, when in others coma and delirium became fixed: the sick *slumbered* with their eyes half open, and appeared to be affected by violent internal pains: for touch them gently as you pleased, they would screech out, and the whole countenance would be expressive of tremendous agonies. If they were asked whether they felt pain, they replied in the negative. They lay either on their back or abdomen, but rather inclined to roll on the floor. *Speech* and *deglutition* now became difficult or altogether impeded; *rattling in the throat* succeeded; and death, attended by convulsions, closed the terrific scene. Immediately after death, *the body became covered with livid or black spots* in many instances; or *universally yellow:* though these appearances did not always supervene after the fatal period.

Some patients, about 12 hours and sometimes longer before death, appeared to be *cheerful* and *remarkably strong*, so that, at times, they would get out of bed in spite of the attendants; but would soon fall, and *froth violently at the mouth.* If the vomiting and hiccups ceased, the patients could take and apparently digest any food or medicines, even solid food or the bark; believing themselves to be

well, would wish to rise and attend to business; the pulse and breathing at the same time indicating a change for the better: but this change was of short duration—a few hours intervened and the pulse began to sink. The former prostration of strength recurred, and the whole body was spasmodically affected. They raged and snored aloud, while death pressed hard with rapid strides. Sometimes from 12 to 24 hours before death, a *cadaverous fœtor* exhaled from the body.

MILD FORM.

First Stage. This stage commenced with vertigo, gentle or violent *head-aches*, pains in the *loins and back; lassitude, nausea, vomiting of mucus* and an uneasy *sensation at the præcordia.* These symptoms were sometimes of a shorter and sometimes of a longer duration, but seldom exceeded 12 hours, and were followed by *rigors*, which were succeeded by a *gentle heat*, not much exceeding that of nature. *Stupor* then came on, *slight wanderings* without confirmed *delirium*, and increased pains of the head. The *pulse* was varying but soft, not too rapid and sometimes regular. *Respiration* slow and sometimes difficult. The *face* frequently flushed with a transient red, and again pallid as suddenly. The *tongue* was coated with a thick white mucus; at other times clean and moist, as in its natural state: the *taste* insipid, seldom bitter, and the *thirst* moderate.

Second Stage. In this stage those symptoms which had continued for 12 hours produced an alteration in the disorder. Light *sweats* on the remission of the fever made their appearance on all parts of the skin, and afforded wonderful relief to the sick: nevertheless, *lassitude*, a dull *pain in the head*, *want of appetite* and sometimes a superadded *nausea* still remained. In the mean time, the patient could bear no more than to get out of bed, walk a little and take some nourishment.

The fever might now be conceived of as progressing to a happy crisis, *unless the countenance suddenly turned livid with an increase of lassitude, and coldness of the extremities, restlessness and want of sleep, or slumbers of a broken and disturbed nature supervened*, which are alarming symptoms and can never escape the observation of an attentive and skilful physician.

This stage of the fever continued two and even four days without any very material change, nor did the patient really appear as if ill of any malady; but suddenly on the beginning of the fourth or sixth day, the third stage of the fever came on with terrific symptoms and sudden death.

These symptoms were comprised in a *sudden and total loss of strength, nausea and vomiting of a dark flaky and at last black matter like the sediment of coffee. Stools of the same kind followed; blood dropped or ran continually from the nose and sometimes was ejected from the stomach; excruciating pains in the heart and thorax generally: slow, very slow and laborious respiration.* The *eyes*, the *neck* and *breast* were now obviously tinged with a *yellow suffusion.* The *tongue* was black and rough or dry, red, shining and smooth; *singultus* frequent; *subsultus tendinum* and *delirium.* The *hands* turned livid and cold; *cold clammy sweats* pervaded the whole system and death attended by convulsions terminated the disease.

Sometimes it was impossible to perceive a remission, for the symptoms of vomiting and increased lassitude still continued, and for a few hours, the symptoms really increased: but in about twelve hours they passed into a remittent state, with viscid sweats standing on the forehead and breast. Again—the transit into the second stage was marked by no apparent change, excepting alternate accessions and remissions: and with an access of increasing symptoms and an increase of debility, the first stage passed into the third.—But if the *transit into the second stage was clearly defined*, then on the second remission and rarely on the third the pains of the head ceased, though the vertigo and wandering still remained. The patient at the same time laboured under so great a lassitude, that he could not rise without augmented vertigo, nausea and vomiting: and the stomach affected by so great a degree of irritability, that it could not bear any thing except cold water and the most lenient drinks; it ejected all kinds of medicines especially the Peruvian bark: and in the same manner it refused to receive *wine.* The patient could not bear wine, in consequence of the *intolerable heat* which it excited in the œsophagus. At times the sick were extravagantly fond of *cider*, *milk* or similar drinks, which although they might be taken, yet were of no real benefit. *Milk* was generally ejected in a *curdled state*, in a few seconds after its reception into the stomach.

A continual inclination to *sleep* oppressed the patient and

yet he was unable to sleep. But if he *slept* any, the pulse, respiration and heat were natural, or like that of a healthy person in a slumber. Experience has taught me, that these apparently light symptoms were certain indications of extreme illness, and that death was speedily approaching.

There was generally a *diaphoresis* on the surface of the body at this period towards evening, and the sick appeared more lively and cheerful. But this hope was delusive. By morning the *heat of the body* had decreased, the extremities become cold, the surface dry and the debility excessive.

In this state, perhaps the patient remained three or four days, his *strength* apparently *increasing*, *the heat of the surface decreasing*, the *pulse* softer and more debilitated, though slow and regular. Rigors, purging, coma and a universally icteroid cold skin supervened, which ushered in the third stage.

THIRD STAGE. As soon as the *skin turned yellow*, in this stage, all the symptoms suddenly assumed a more alarming aspect. The *abdominal regions were so easily affected, that they could not bear the slightest impression.* Singultus, subsultus tendinum and sometimes so deep a coma, that the patient could not be roused. He wandered and muttered to himself, vomiting ceased, and nutriment and medicines were retained. The *pulse* now vacillated and at length became imperceptible at the wrist. The whole frame was in a tremor, or spasmodically affected; and a *cold clammy sweat* pervaded the whole skin, when death terminated the affecting scene.

These are the forms this fever generally assumes among *strangers* at Demarary.

VARIOUS SYMPTOMS DELINEATED.

I never found the *pulse* tremulous or vacillating, except a few hours before death. An intermitting pulse was not unfrequent a short time before the fatal period, though not always a prognostic of death. It seldom sunk lower than 40 strokes in a minute, and the instances that came under my observation were very few, where it rose higher than 100 strokes.

A complication of *bilious sordes* or increased bilious secretions were predominant symptoms, when this fever was very prevalent at the end of the wet season or the commence-

ment of the dry. These symptoms greatly decreased when the dry season was actually fixed.

The *urine* in the first stage was of a deep red, small in quantity, and after standing some time appeared turbid. Nothing of moment could be inferred from the state of the urine; I therefore generally neglected its inspection, and trusted to more determinate symptoms. *Suppressions of this secretion* sometimes occurred in patients labouring under this malady. My recollection furnishes me with an instance of a suppression of urine, attended with acute pain, in an American captain sick of this fever at Stabroek, that would not yield to any remedies, until the catheter was had recourse to; and I was necessitated to repeat it three days successively, before it totally subsided. I saw another instance on board the United States ship of war the Portsmouth, of a suppression of urine of three days standing, in a case of yellow fever, and without occasioning any pain. This case however terminated fatally.

Hemorrhages from the nose, gums, stomach, anus, &c. occurred repeatedly. I saw one case of an *universal hemorrhage* (if you will allow the expression.) See case 5th, annexed.

In the second and third stages, I have remarked so acute a *sensation in the gastric region*, and thence extending frequently to the right and left *hypochondria*, and indeed over the whole of the *abdomen*, that no part of it could bear the slightest touch. At first the patient complained only of a sense of oppression and heat at the stomach, when he made an effort to drink.

The *icteroid or yellow suffusion* of the skin, which commenced in the third stage, seldom made its appearance instantaneously, but came on gradually, commencing in the *adnata of the eyes*, and on the *forehead* and *neck*, about the same time, and extending over the body and extremities. But when it appeared in the second stage, it came on as the patient was sinking, either on the 2d, 4th or 6th day.

The greater the "tension and re-action of the vessels" (to make use of the words of the celebrated CULLEN) which takes place in the first stage, the shorter the period of *inflammatory diathesis* in the system, and the more rapid the transit to the second stage, so much the more danger was to be apprehended. *If great atony* prevailed, the transit into the second stage was not easily discovered.

I saw a *suppuration of the left parotid gland* in one in-

stance in the yellow fever, and saw it terminate in *carbuncles*, in another instance, on the calves of the legs; and in an eruption on the face, neck, breast, &c. in the same patient, like a *variolous eruption;* twice in *dysentery,* and several times in *intermittent fevers.*

The peculiar and genuine symptoms of this fever, which I have remarked in the first stage, are as follows, according to actual observation.

The more *malignant forms* admit of no remission, or it is so slight that nothing but a viscid humour partially pervades the forehead and neck; but these are not real sweats. The pulse is full, even, and not very rapid. The external heat is moderate, the internal glowing and fiery. The thirst is intense; headaches; the adnata of the eyes suffused with redness, and the delirium obstinate; an uneasy sensation of heat in the stomach, with nausea and vomiting: countenance wonderfully disturbed. The features are indicative of complete distress and anxiety, peculiar I believe to this form of the disease, and which are not easily described. Uncommon languor and stupor in some.

But in the *mild forms* of the fever, the pulse is soft and not too rapid: the heat moderate: a remarkable degree of stupor and languor, that does not seem to correspond with the other symptoms. The respiration is slow, and sometimes oppressed, and frequently interrupted with deep sighs. When the second stage is ushered in, the diagnosis of the disease is easily attained, provided the disorder proceeds as already pourtrayed; and from the principles above laid down, the signs of approaching danger may be easily discovered.

It may not be unnecessarily observed, that several instances happened of the *falling off of the hair* in the convalescent state, leaving the head completely bald; but it readily grew again after a few months had elapsed.

Vomiting was not an universal concomitant of this fever. Several cases fell under my care, where the stomach was perfectly retentive from the beginning, when all the other pathognomonic symptoms of the yellow fever were clearly apparent, and where sometimes it terminated fatally. Two or three persons that came under my direction recovered, after the *black vomit* had actually commenced. In several black-vomit cases, *round worms*, a foot long, were ejected from the stomach by the violence of the efforts in vomiting, and sometimes they were black and putrid and dejected by *stool;* when

the patient in health had not been conscious of his having any. This circumstance, however, by no means led me to suppose that to be a peculiar symptom of the disease; but their becoming putrid was considered to be the effect of a putrefactive process going on in the contents of the stomach and intestines, as well as in those organs also. For when these worms were discharged in a putrid or black state, it was always a *mortal case*, and on dissection the stomach or alimentary canal, or both, were found in a sphacelated state.

I saw one person who became excessively *deaf* at the solution of his fever, but soon recovered his hearing after he was able to walk about.

Wakefulness in the convalescent state of this fever was frequently very perplexing. I was exceedingly harassed with it, in my recovery from an attack of the yellow fever at Trinidad. If I caught a little doze of sleep, *ocular spectra* were constantly before me, so that sleep was of no material benefit.

It was not common for persons to be attacked with this fever, if they were *infected with a lues* or *gonorrhœa*. Two such persons only came under my care; one of the former and one of the latter disease; both of whom died.

(To be Continued.)

ACCOUNT *of a* DISEASE *among* NEAT CATTLE, *apparently caused by browsing the juicy sprouts of Oak-Shrubs, in the woods of Suffolk County (N. Y.) By General* JOHN SMITH, *Senator of the United States, in a letter to Dr.* MITCHILL, *dated Washington, Jan.* 10, 1809.

AGREEABLY to my promise I now give you, my colleague, a concise account of a disease very common among the horned cattle, suffered to go at large in the woods in the county of Suffolk, on Long-Island. This disease is known by the name of the *Leaf-sickness*, and prevails in the month of June, or at the time when oak leaves get their full growth, and when the fuzz, or *oak tow (tomentum)* as it is commonly called, begins to fly off from the leaves. The malady is, no doubt, occasioned by the cattle eating too freely of the leaves at this time; but whether the sickness is ow-

ing to the poisonous quality of the fuzz, or the astringent juice of the sprout, which shoots at this time, is a matter of dispute with those who have been the most attentive observers on this subject.

I am inclined to believe that it is the juice or sap of the sprout, which contains a large portion of the *tanning* substance, and operates as a most deadly poison upon the unfortunate animal. The creatures affected with the disorder, in some cases, swell much in the body; though more commonly they are very lank. They appear to have a high fever, although they often live and have strength enough to walk for two weeks after the first appearance of the disease; and yet eat very little, if any, during the time. Upon dissection, they are often found to have a large quantity of oak leaves packed hard and dry in the maw, or manyfold; but this is not always the case, and probably is the effect and not the cause of the disease. Many remedies for their cure have been furnished and applied, but all with very little or no good effect. I have lost as many as thirty cattle in the course of a few years with this sickness, and have never been able to recover one that had the complaint in more than a very slight degree. I have bled them freely, given them calomel, oil, and cathartics of different kinds, and all without the least perceivable advantage. They have generally lived eight or ten days after the first symptoms of sickness, and before they died have discharged bloody matter from the nose; and the alvine fœces have very much resembled tar.

From the description which I have given of this disease, should you be able to prescribe an antidote, you will confer a favour on the citizens of Suffolk, and on your humble servant, &c.

On the EFFICACY *of* ALKALIES *to preserve* CLEANLINESS *and* HEALTH *on ship-board, and on the* USELESSNESS *of* ACID FUMIGATIONS *for those purposes. In a letter from* JONATHAN COWDERY, *Esq. Surgeon in the Navy of the United States, to Dr.* MITCHILL, *dated Norfolk, May* 10*th*, 1809.

PERMIT me to suggest to you a few remarks on what I have found to be the best means of preserving the health of seamen, particularly while on board of ships of

war; and if you find any part of it worthy of notice, I will thank you to give it a place in the Medical Repository.

During several years I have served in the medical department of the Navy of the United States, on board of different vessels and on various stations; such as the West-Indies, the coast of Barbary, the shores of Europe, in the Mediterranean, and, during the late embargo, along the whole coast and in many of the ports and harbours of the United States. In these climates, our officers, seamen and marines experienced the varieties of heat, cold, frost, rain, fogs, winds, calms, and the extreme varieties of dry and moist atmosphere. In our voyages, our naval commanders have generally had the wisdom and humanity to allow or order a regular and particular attention to alkalizing, cleansing and drying the ships and vessels under their command, and to lixivial cleanliness, cloathing, provisions and water for the men under their orders. Where this has been practised, our men have enjoyed remarkably good health, particularly when compared to the crews of the ships of war belonging to other nations, which we often fell in with.

Much has been said and written on pneumatic chemistry, by which it has been presumed to teach how to weaken the power of contagion, and also to remove it. Lind fumigated with burning sulphur; Morveau with the vapours of marine acid; Smyth with the exhalations of nitric acid: his plan is sanctioned by the British government with a gratuity of 5000l. sterling. Whatever has been or may be said on this subject, it is clear that the emanations from filthy cloathing, damaged provisions, bilge water and confined air, are the means by which disease is produced on board of ships. It is by these that the atmosphere becomes tainted, and in that proportion the various forms of fever are produced. The manner in which these effluvia are actually received, is by no means ascertained: but whether introduced by the stomach, or by the lungs, or by general absorption, or immediately affecting the sensorium commune, it is clear that their action is principally on the nervous system, and that the powers of life are immediately assailed. Since I perused the recommendations of various means for preserving the health of seamen, and for dissipating the cause of fever on board of ships, I have always found that with all the pneumatic chemistry and the whole array of artificial gases which have been invented, no good effect was ever produced, if the auxiliary means of ventilation and cleanliness were not

particularly employed. The last fifteen months of my public service, I had the honour of the medical charge of the crew of the United States brig Argus, of 18 guns and 130 men. She was first stationed at Norfolk, (Vir.) from whence she was ordered on a cruise along the coast, and off the ports of North and South Carolina and Georgia. Our cruising ground was extended in the course of the summer from Florida to New-York, and during the fall and winter following, we were stationed on the coast of New-England. From an apprehension of the extreme summer heat on the southern station, and the extreme cold and tempestuous winter on the northern station, great precaution was used to preserve the health of the crew. Our men were not allowed to sleep on deck, nor in the open air; but enjoined to sleep in hammocks, with clean, dry and comfortable blankets and mattresses. Whenever our water was foul, it was purified with unslacked lime or with pulverised charcoal. The provisions were often examined, and when any of them were found (by a regular survey) to be tainted, they were thrown overboard. Particular attention was always paid to the cleanliness of the men, who were cloathed according to the climate we were in. The inside of the brig was often white-washed with new lime, and the decks were often (in the sea phrase) *hail-stoned* with sand and lime. The birth-deck was never washed except in fine weather, and when washed it was perfectly dried before the men were allowed to sleep or replace their hammocks, chests and bags. In hot weather, awnings were spread above the decks, to shelter the crew from the ill effects of the sun and dew. Wind-sails were placed at the hatchways, to give a free circulation of air betwixt decks.

While in the vicinity of Savannah and St. Mary's, we had a few cases of fever, with typhous symptoms; but on the application of the modern remedies, and a perseverance in your alkalizing plan, they were soon relieved, and the patients recovered their health. While on the New-England station, the winter commenced with cold rain and violent gales of wind: after much fatigue and exposure to the inclemency of the season, a great part of the officers and crew were attacked with either catarrh, pneumonia, or rheumatism. The usual remedies had but little effect, until stoves were placed betwixt decks, with fires. By these, the sick were kept dry and comfortable, and with the lancet in a few cases, and a trifle of medicine, with proper nourishment and

good nursing, they all soon recovered their health. Fires were kept between decks the remainder of the severe season, and under our usual regulations the crew remained remarkably healthy. We returned to New-York in April, where I obtained a furlough and left the vessel. During the 15 months that I had the honour of superintending the health-department of this vessel, I declare to you that we had the good fortune not to lose, by the hand of death, a single one of our crew.

REMARKS *on the* SPOTTED FEVER, *as it has appeared in the State of Connecticut; drawn up by Dr.* SAMUEL WOODWARD, *Physician at Torringford, dated 7th March*, 1809.

[For the communication of the following paper we are indebted to the kindness of Dr. Ricketson, to whom it had been transmitted by Dr. Mason F. Cogswell, of Hartford. As the public will justly attach great respect to the opinions of Dr. Cogswell on this subject, we are glad to receive Dr. Ricketson's consent to publish a few lines from his letter. After expressing general approbation of Dr. Woodward's remarks, and coincidence with him in opinion, excepting in a few particulars, Dr. Cogswell proceeds to observe:—" That the disease in question is a disease of debility, cannot be doubted, and that evacuants cannot be depended on as a remedy, is equally well settled.—Indeed in the worst cases, there is no morbid bile or mucus found in the stomach or intestines, as an exciting cause of the disease; but in all cases, you well know, evacuations from the bowels must be made. In the worst cases of this disease, the prostration of strength is so great and sudden, that the patient cannot be evacuated with safety until, by a judicious use of stimulants, he is roused from that state of extreme weakness and torpor with which the disease first commences; and even then, it must be done with great care and caution, especially with respect to bleeding and purging: emetics may be used with more safety, as they sometimes, by exciting the stomach, excite the action of the whole system."]

REMARKS ON THE SPOTTED FEVER.

I NOTICED some hints several weeks since, accusing the physicians of this State of a criminal neglect, for not giving to the public the result of their experience

on the Spotted Fever; and hearing that a number of physicians met at Farmington, for that purpose, and not having leisure to attend said meeting, I offer the following remarks, which are the result of my experience alone, without any assistance from books.

This disease appeared in the town of Winchester, in Litchfield county, in April, 1807, when the frost was dissolving and the ground breaking up, and was noticed to make the attack most frequently in rainy weather. Young people, under the age of twenty, were most liable to it, and among adults, females more liable than males. No age nor sex, however, were free from the attacks. It assumed, in different subjects, all grades of disease, from a mild fever to a perfect plague. The symptoms were various according to its inveteracy. It attacks with lassitude, chills, great prostration of strength, eyes red and watery, pupils dilated in some cases, in others small, like dying persons; often delirium with exquisite pain in the head; great anxiety at stomach, with tossing of the body; nausea, and often a troublesome vomiting; a pain and lameness in some of the limbs often ushered in the disorder; there was a soreness of the flesh, and generally spots on the skin, the size of half a common turkey-shot, were scattered over the body, resembling blood blisters; likewise, efflorescences of various sizes and shapes in different parts, which were dark or florid; and a dark or light colour of these spots and efflorescences gave a clue to a favourable or unfavourable prognosis. The darker the more dangerous. In some, after the chills, there was great heat, which was of the thrilling, stinging kind. The pulse, like other symptoms, was various, sometimes considerably full, but generally very weak, quick and irregular. The disease, sometimes in this season, assumed the inflammatory type, sometimes the synochus, but generally the typhus. The violent symptoms were great lassitude, with universal pains in the muscles, chills, heats, if any, were of short duration, unusual prostration of strength, delirium, with severe pain in the head, vomiting, with undescribable anxiety at the stomach, eyes red and watery and rolled up, and the head drawn back with spasm; pulse quick, weak and irregular; petechiæ and vibices all over the body, and a cadaverous countenance and smell—death often closed the scene in ten or fifteen hours after the first attack—some however survived all these symptoms—those who died, generally appeared to sink away under the load of disease, became cold

and low, and died comatose, with all the marks of general mortification; others went off suddenly, apparently ap plectic. The body, near the fatal period, and soon after, became as spotted as an adder, and demonstrated a general dissolution of the fluids. Those who survived these symptoms, appeared to owe their life to a very liberal use of strong stimulants and tonics, and when the vital flame began to be rekindled in the system, some grievous external affection most certainly appeared: such as inflammations of the joints, like the acute rheumatism, or an erysipelatous affection of the skin, or racking pains without any morbid external appearance, convulsions, spasms, &c. These external affecti ns often proved very lingering and tedious, and in some instances quite exhausted the patient. This, however, generally proved a manageable state of the disease, and rather to be desired than feared.

Respecting the method of treatment, physicians judged differently, as they probably always will, when diseases assume unusual forms. Some were depending entirely on evacuants, others on stimulants and tonics; the violence of the symptoms seemed to demand potent remedies, and the shortness of the term that those remedies be early applied. It is highly important, in such violent diseases, where a physician can have no time to correct his own errors, that the state of the system be early and nicely distinguished. In some instances, in this season, the disease undoubtedly put on the inflammatory type, in which blood-letting proved a remedy, but subsequent experience has convinced me that it was used much too often. The heat was frequently so great, and of such a duration, that a very early use of evacuations from the stomach and bowels gave manifest relief: but this, like bleeding, was carried too far; generally in this season, stimulants and tonics were the most successful. I pretty early learned that faintness was very hazardous, and if blood-letting was used, that it ought to be in a recumbent posture from a small orifice. I saw cases where there was insupportable anxiety and tossing of the body, accompanied with great heat, where ease was procured by small openings in the veins of the hands or feet, and the blood suffered to flow by drops. I likewise saw several who were brought into a low comatose state by a small bleeding, which cases entirely baffled the power of medicine, and proved fatal. A low comatose state, with occasional vomiting, was most to be feared. An apoplectic state was likewise very dan-

gerous. I saw some lie in that state for a considerable time, where the heat of the body, the respiration and pulse were as manageable by medicine as they are in fevers generally, but nothing gave the least relief from the affection of the brain. When patients were raised from a low comatose state, it was done by large quantities of stimulants and tonics. When wine or ardent spirits were given in such quantities as to produce a degree of intoxication, they never appeared to do any injury. Having no guide but experiment, bleeding, vomiting, purging, sweating and stimulating were all tried: sweating appeared to give the most relief. The methods to procure it were various, but that which proved the most certain and easy, was by the application of external heat with internal stimulants. Fomentations with hot cloths, the application of hot blocks, hot bricks or stones, and a column of steam conveyed into the bed by a funnel, were all tried, and the steam preferred. Laudanum, brandy, wine, essence of peppermint, hot sling, hot herb teas, such as pennyroyal, peppermint, rue, saffron, and many other kinds of warm teas by themselves, and with spirit, were used according to the habits of the patient, and other circumstances. When herb teas would sit on the stomach and produce sweat, I thought them preferable to ardent spirits, as not so apt to produce headache and delirium. Sweating produced by any hot applications, not so essential what, seemed to answer the desired purpose; and after this method was adopted, the disease proved much less fatal. When those inflammatory affections of the limbs above-mentioned appeared, the treatment was various, but for those affections, simply blistering and mercurials were most successful. Those inflammations of the limbs frequently arrived to such a state as to require bleeding and antiphlogistics, where a great degree of lowness had preceded. The seat of these inflammations often changed; the fingers, wrists, elbows, shoulders, back, hips, knees, ancles and feet, were alternately attacked, and the pain and lameness were so severe that the patient would cry out grievously on the least motion. The disease grew milder as the weather became warm, and disappeared at the heat of summer. Those who died, chiefly went off with the lowness which took place early in the disease, some in five or six hours, but they generally died between twenty-four and forty-eight hours after the attack. If they survived forty-eight hours, the disease assumed the type of fever, and became manageable like other

febrile diseases; some died at a later period, but no more than are commonly carried off by other bad conditioned fevers. In September following, the disease made its appearance in the village of Winstead, attended with less inflammatory symptoms; the eruption on the skin was not so general, nor the inflammation of the joints so severe as in Winchester the preceding spring. The disease, in this season, frequently succeeded the influenza, and more generally assumed the typhus form. Bleeding was tried, but I believe always did harm. Sweating, produced by external heat and internal stimulants, proved most successful and was most generally used. In December following, the disease appeared in the town of Goshen, and at first was treated like other fevers; several of the first cases proved fatal; then the stimulating, sweating course was adopted, and proved very successful. I saw but a few of the cases myself, but was informed by an intelligent physician who attended, that the disease yielded generally to sweating, bark, wine, and other stimulants. The proportion of fatal cases was much less than had been in the adjacent towns.

In the spring following, and fore part of summer, the disease appeared in various towns adjoining the first mentioned, with symptoms considerably different. An eruption on the skin so seldom appeared, that it could no longer be considered a characteristic symptom of the disease. Those spots, the size of half a shot, resembling blood blisters, have not appeared in those cases which I have seen; and those inflammations of the joints above mentioned are now seldom noticed. All the attacks, for a year past, which I have seen, are of the low typhus kind. I have not bled a patient for a twelve month when labouring under that disease, unless accompanied with some other complaint which I thought required it. I have seen some very malignant cases, but generally the disease the year past has been much milder than before: bark, opium, ether, peppermint, ardent spirit, wines, stimulating teas, and sweating, with external heat, have been the remedies used, and when applied in season, have seldom failed of success. I endeavour to obviate costiveness with some kind of cathartic; calomel is a favourite ingredient for that purpose. Where there is vomiting accompanying a sufficiency of vital strength, I have given vomits, but seeing the ill effects in a few cases, I am cautious, and hereby caution others against vomiting where there is lowness. I have seen several cases which appeared despe-

rate, where there was no pulse in the wrist, and the patient too insensible to swallow what was put into the mouth, recalled to life by the application of external heat. This likewise will continue the circulation for a considerable time, and add to the chance of life in cases sunk by incessant vomiting. This method I confess admits of some exceptions in warm seasons: when the patient had been over stimulated, I have seen cool air, a cool room, and a cool bed, very refreshing. Unexceptionable rules cannot be introduced into the practice of physic. The symptoms of each case form the indications, and must regulate the practice. I would recommend to people who reside at a distance from a physician, to pay attention to any kind of indisposition, which gives reason to suspect this deplorable malady. If a person is attacked with pain or lameness in the limbs, accompanied with chills, headache, vomiting with great weakness, a pale sunk countenance, with a weak pulse, pains in the flesh generally, or any particular part, let him be put to bed and use as freely of hot sweating teas, with a little spirit, as the stomach will bear, together with small doses of laudanum and essence of peppermint, repeated every few hours, and at the same time apply fomentations, hot blocks, or the steam of hot water externally. If the disease should not prove to be spotted fever, the practice may give relief, or if the disease is inflammatory and the practice injurious, the mischief produced may easily be remedied. I am induced to give this advice, from a knowledge of the hasty progress of this doleful malady to death, and a conviction of the efficacy of this mode of treatment, when early used, to prevent that result, or mitigate the symptoms till a physician can be called to give better advice.

CONJECTURES *on the* REMAINS *of* MILITARY *and other* WORKS, *found in the Western parts of the United States: Communicated to the Editors by Dr.* MOSES YOUNGLOVE.

FROM different parts of our immense forests and savannas to the westward, frequent communications are published relative to ruined fortifications, mounds, &c. whose extent, regularity, and evident antiquity seem generally to impress contemplative minds with the sad idea of once polished nations and empires, now utterly extinct, and forgotten in history, and even in tradition.

This melancholy opinion, countenanced by every comment I have yet read on the subject, I have these several years dissented from, and have been disappointed at not having yet seen a different sentiment offered to the public; for having attentively scrutinized all the evidence and reasonings I could find on that topic, I am fully of opinion that a nation or nations of Indians, nearly equal in civil arts and refinement to those of the Mexican and Peruvian Empires, when attacked by Cortes and Pizarro, may probably at some remote age have inhabited these happy regions, and more or less aided by civil improvements, brought by their ancestors perhaps from Asia, may have constructed these and other works, as did the Mexicans and Peruvians their aqueducts, cities, and rude yet regular stone temples, inlaid with gold. And their descendants may yet exist on our western border, barbarised by the iron yoke of savage oppression and conquest, till at length incorporated into the rude tribes of their conquerors, as were once the polished Italians into those of their barbarous Scythian invaders.

Or they may perhaps still more probably have been the ancestors of the Mexicans and Peruvians, who gradually emigrated to those yet milder climates, requiring less cloathing, and more abounding in spontaneous productions of the earth, for their sustenance; or driven thither by bloody incursions of new hordes of savages from the northwestward.

REVIEW.

An act for making further provision for the effectual performance of Quarantine; and also an Order in Council for carrying the same into operation. Passed 45th Geo. III. March and April, 1805. *New-York*, T. and J. Swords, 1809. 8vo. pp. 67.

ON the restoration of commerce with Great Britain, after an embargo and non-intercourse, which continued for a term exceeding 14 months, from Dec. 1807 beyond March 1809, it has been judged expedient to publish for the American governments and merchants, the restrictions under which navigation and trade are limited by means of quarantines. By a mistake which can never be too much regretted, the malignant sickness at Philadelphia in 1793, was pronounced by the municipal and medical bodies of that city, to be highly contagious, and imported from abroad. As a consequence of that unfortunate misconception, the rules of guarding against its extension and recurrence, which Christian nations have adopted to secure themselves from the plague of the Mahometan countries, were immediately quoted and applied. Quarantines for ships, and Lazarettoes for their cargoes and crews, were immediately provided; and strict and severe regulations framed to prevent the spreading of the contagion.

The authority of so grave an example from so discreet a people as the inhabitants of Philadelphia, had great sway in the neighbouring States of the American Union. The violent and fatal endemic fever of New-York, in 1791, had passed away without agitating and convulsing society at large. The idea of wide-spreading contagion had not occupied, as yet, the public mind; but a local calamity, proceeding as was supposed from a domestic cause, was permitted to pass away without alarming the commercial world. But on the re-appearance of a similar distemper in 1795, the inhabitants were duly prepared to imitate the precedent of their neighbours, and to ascribe the afflicting visitation their city underwent, to some mischief from abroad. Contagion and

importation were resorted to as the only means of solving the mystery; and like the people of their sister city, they seemed willing to impute their sufferings to any cause rather than the true one.

Under the influence of these early opinions, it almost appeared a desirable object for our young and aspiring Republics to acquire the distinctive marks and characters of the few nations in the western parts of Europe, with whom they held intercourse. Among these enviable tokens of distinction, were the means of precaution erected upon a grand scale, for admitting foreigners and their merchandize to our markets, and at the same time excluding their distempers. Copying too precipitately the regulations of the northern nations of Europe, our Boards of Police and Health deceived themselves. At that time they knew not that these were substantially the rules adopted at Marseilles. Nor has it been stated until a still more modern day, that the sickness which prevailed at that city in 1720, and which gave rise to this famous code of health, was not imported from Syria or Morea, but engendered at home among themselves. The system of rules enforced at Marseilles, has been considered as a sort of common law, among the maritime people of Christendom. And the exactness with which they have been copied by the different navigating cities and states, is truly wonderful. One municipality after another had voluntarily yielded to this mass of legislation, until all the sea-ports or governments of Christian Europe had received it as part of their internal law.

There is something of a very imposing nature in a system of health-laws, as they are called. We are flattered with the belief that we shall escape diseases, and enjoy length of days, in proportion as we keep off those of foreign origin. And a quarantine system in full operation, with a pest-house and a lazaretto to aid them, and a body of guards, porters, physicians and attendants to boot, please us with the consciousness of entire security. There is a somewhat highly consoling to human pride in these institutions. Each city and people is thereby reminded of the more ample share of happiness they enjoy than their neighbours. While the greater part of the human species think they are groaning under the most foul and loathsome disorders, we, the favoured part of the creation, have an exemption from that class of woes; and our sagacity has devised a method of getting the profits of their commerce, without sustaining the attacks of

their diseases. By the same means we lose or deaden the self-reproach arising from an overplus of inhabitants, a scanty season, an unhealthy atmosphere, accumulated filth and nastiness, a neglectful police, bad medical treatment, and preposterous regulations at home. Every thing with us is complete, perfect and just as it ought to be; and our neighbours are cursed with the evils which we have never felt but by derivation from them, and which we never shall experience again if we duly fortify against them. As castles and batteries are arrayed against our enemies, so the misconceived operations of quarantines and lazarets are marshalled against external distempers.

Idle as these dreams are, they might be indulged if they were harmless. They are productive of great and lasting mischiefs. They are not to be ranked among the innocent illusions of the mind. In all these strains of selfish and conceited talk in favour of ourselves and at the expence of our neighbours, it ought everlastingly to be remembered, that our neighbours indulge themselves in conversations equally free and unrestrained about us.

——— Mutato nomine de te
Fabula narratur ———

And it is sorrowful, though perfectly natural, to listen to the West-Indians recriminating upon the United States the abuse so lavishly bestowed upon them by our countrymen, for the yellow fevers they send us with their rum, sugar and coffee. Nor is it less pitiful, though just as characteristic, to discover the health-offices of the settlements there, exercising their vigilance against the malignant fevers exported from the United States, with lumber, fish and beef, as carefully as ours look for those which the Caribbees, or the Leeward islands send to us.

The fundamental error of the people of the United States, in fastening upon themselves a contagious and mortal distemper, and attaching thereto the unmitigated and monstrous quarantine system of Europe, would have done but little practical harm, had not the European nations and their colonies retaliated upon us. Yes; they have retaliated with a vengeance. They have heard our accusations against them, and have returned full, and if not satisfactory, at least conclusive answers. They have told us, that as far as related to contagious distempers, raging among ourselves, they give unlimited credit to our assertions; but when we impute to those

nations or dependencies respectively, the same hideous evils of which we complain, and charge them as the authors, they tell us to our beards that there is not one word of truth in our declarations, and that these are as void of decency as of intelligence.

But there is another calamity incidental to the assumption of contagious fevers imported among us. The importation of diseases is a part of the commercial slang of the sea-ports. It naturally follows however, that a thing which can be imported, may be exported. And the European nations entertain strong apprehensions of importing from us such noxious commodities. On contemplating the settlements in America, the European nations have indulged a train of thinking that is somewhat curious. Originally all these western regions were their own colonies. They traded with them, wholly unsuspicious of contagious fevers. They never entertained a thought of putting them under the law of Christendom, and ranking them with the infidel powers. In regard to the plantations and provinces yet depending on the mother countries, no sentiment so unfriendly has been expressed, no opinion so humiliating and derogatory has been entertained. And America would not have furnished an exception to the rule, had not a free and independent nation arisen there. It was reserved for that nation to publish to mankind at large, the loathsome and contagious character of its ships, the disgusting and pestilential condition of its cities, and the foul and terrifying diseases of its people. What would never have been uttered on these points by colonists, or would never have been credited by the parent state if it had been uttered, was after long hesitation and many years of doubt, at length, reluctantly credited in Europe. The governments of that quarter of the globe, which still consider their American dominions as on the footing of Christian nations, have been importuned by the United States so forcibly and so long, that we are classed with the barbarous governments of the earth. The Continent (not the Islands) of America, are in the statute and order now before us, enumerated in the same sentence with Turkey and Barbary, as the regions where plague and infection reside. There is an extension also to all European ports without the Straits, in which there is not a sufficient quarantine establishment.

The prevailing regulations of quarantine have long appeared to us so inconvenient to commerce, so unreasonable in princi-

ple, so inefficient in themselves, and so disgraceful to the human understanding, that we have frequently and freely animadverted upon them in the progress of our work. Though we shall not repeat the observations and remarks heretofore made, we should do injustice to our readers and to the cause, if we did not refer to the subjects. For the rational history of quarantines, see M. R. Hex. I. Vol. v. p. 243: for a report to the House of Representatives on quarantine establishments, see same Hexade, Vol. vi. p. 460: for some overtures of our government to lessen the rigours abroad, see Hex. II. Vol. i. p. 215: for the broad display of quarantine regulations by the European nations against the commerce of ours, see same Hex. Vol. iii. p. 224—233: for Dr. Mitchill's speech in Congress on this subject, see ibid. p. 447—454: for a review of Dr. Caldwell's oration, see Hex. II. Vol. iv. p. 394; and for the manner of performing it at New-York, the reader may turn to same Hexade, Vol. v. p. 58.

The mistakes concerning the pretended importation of the plague into Marseilles, in 1720, and into Messina, in 1743, have been fully exposed in our Hex. II. Vol. ii. p. 225, and in same Hex. Vol. v. p. 156—164. And the misstatements and perversions of facts in these cases are so glaring as to call in question every other alledged instance of imported epidemics or plagues. The fabrications and prejudices connected with the importation of yellow fever into the United States, have been so often exposed, that repetition has long ago grown weary of exposing them. Yet, although individual conviction has been wrought, in favour of truth and against these errors, still public opinion is unchanged. And at every return of a malignant or yellow fever, however locally engendered, and incapable of being propagated beyond the atmosphere which bred it, society immediately rises in uproar, the neighbouring cities issue proclamations of safety, quarantines are inforced, and intercourse restricted. It is this anti-social and ruinous game which the cities of the United States are playing against each other, that has emboldened the nations of Europe to enact rigorous laws against us, seeing that our towns are equally strenuous in inforcing similar regulations against each other. They do but execute against us our own judgments. They treat us as we treat each other. They pay us in our own coin. They measure to us by our own bushel. And while all this is doing, they extend an indulgent regard to their own

colonies, of the same lenient complexion that was manifested by the British to this section of their empire, before it was severed by the revolution. A colony, it seems, has an exemption from these frightful infections and contagions; but by the act of Independence it acquires the right and the power to import and export pestilence and plague.

The publication now under review is an act of the British parliament for enforcing observance of quarantine, with an order of the privy council for carrying it into operation. One might express surprise at the passing of such a statute and regulations, was it not evident from numberless examples, how hard, how slow, and how difficult are all general reforms. This laboured performance consists of forty-four sections. It takes for granted all that the contagionists have imagined and written on the subtilness of pestilential venom from Mahometan and outlandish countries. It provides a severe code of quarantine, and enforces it by many severe and heavy penalties, seven of which amount to felonies punishable by death. It revives the odious term *Lazaret*, and thereby helps to perpetuate the horrors of the plague, and to realize as far as possible the shocking tales concerning it. It provides for a grand establishment of this kind on Chetney Hill in Kent, and empowers the Privy Council to make rules for the performance of quarantine in other parts of the united kingdom. It includes Turkey, Africa within the straits of Gibraltar, Barbary along the Atlantic coast to the South, within the pestilential limits. And by the 42nd article of the order in council, vessels, cargoes and crews, coming from the continent of America, though not tainted with Turkish pestilence or productions, are obliged to perform quarantine, according to the nature of the case, in the manner prescribed for vessels coming from the Mediterranean, or West Barbary, with clean bills of health. This subjects each vessel to a duty of seven shillings and six-pence sterling per ton, to a corresponding detention, and to the incidental vexations and expences. And if any Turkish or Barbarian merchandize shall form part of the cargo, the duty may be raised to fifteen shillings sterling per ton. How long will nations endure such burthensome restraints on their commerce?

It is not our intention to enter into the discussion at large about quarantines. But we cannot forbear to animadvert a little upon that mode of reasoning which has been commonly adopted by mankind on this subject. It is the ar-

gument by dilemma, and stands thus; either our country or a foreign country produces plague and yellow fever; but it is not our country; ergo it is a foreign one: or it may be put thus; every thing that comes in a vessel from sea is imported; plague and yellow fever arrive in vessels from sea; therefore they are imported. But these are very fallacious statements of the case. In the zeal of nations to criminate each other, they seem to have almost entirely overlooked the ships that passed between them. These, it ought to have been remembered, answer the double purpose of habitations for men, and repositories for merchandize. A vessel is a floating house, or moveable magazine. As a dwelling-place, she is prone to grow nasty, and much discipline is necessary to keep her clean. The crew and passengers often become extremely filthy from accumulated perspiration and excretions. Their clothing and bedding grow foul and offensive, and gradually engender pestilential venom. Under these circumstances, malignant fevers have often arisen, and raged with remarkable violence. But it would be wholly preposterous, in such a case, to ascribe the inbred venom and sickness on board the ships to infection or contagion taken on board in bulk with her cargo, or brought away substantially from the port whence she last departed. Thus a clean bill of health may accompany a most loathsome vessel; and while it indicates, and truly too, that no contagious malady raged there, at the time of her departure, her internal condition may be unsafe and intolerable, from bad management during the voyage. Here, then, is a local disease, and, as respects the vessel, strictly domestic: a foreign country ought not to be censured for it.

This condition of a vessel is frequently aggravated by perishable and corrupting cargoes. The beef, pork, fish, hides, wheat, maize, flour, meal, potatoes, onions, and a multitude of other articles, often become tainted on shipboard, and emit noisome and sickening exhalations. A foreign country ought not to be blamed for these sources of sickness, any more than for the preceding.

Men are liable to sickness from exposure to the weather, labour, and hardships incident to maritime life. When they fall sick, their situation between the decks of a vessel, and their privation of many aids and refreshments that might be procured on shore, render their diseases more severe, and their deaths more frequent. These unpleasant occurrences ought not to be ascribed to foreign countries.

Transport and passenger ships often grow dreadfully sickly from accumulated filth, and from want of water, provisions, and almost all the necessaries of life, on a tedious and adverse voyage. Such mortality ought not to be ascribed to infection taken on board at the port whence the vessel sailed.

While thus there are so many local and internal causes of uncleanness, of contamination, of accident, and of distemper within a vessel at sea, and often inseparable from her condition as to cargo, crew and passengers, it is but right to consider that there are cases which bills of health are not at all calculated to indicate nor explain. They are deficient in giving the most material information that can befal a vessel during her voyage.

This important and fundamental omission in the quarantine code calls loudly for amendment. A vessel may not arrive besmeared and begrimed with the nauseous filth induced and accumulated while she is on the ocean; but under an order of detention at quarantine, much more mischief may be engendered within her sides from a continuance of the same causes. And no effectual measures appear to have been concerted, either in this law of England, or in the regulations of Marseilles, or in any other quarantine system that we have read. For the proper and entire purgation of the ships themselves, we have no hesitation in observing that it is high time to enforce so important a duty.

We, however, while we offer our strictures thus freely, do not wish to be considered as fault-finders, who complain of existing rules, without proposing any thing better. We are ready with our proposal, which is this: *To abolish quarantine, as it is at present understood and practised, altogether; to substitute in its stead a thorough cleansing of the whole ship, and of the clothing, bedding, and persons of the people, at some convenient station where there are but few inhabitants. To accomplish this, the cargo ought to be taken out, and the sound parts separated from the corrupted: And during all this, it should be steadily recollected, that a vessel is but a floating house, which grows unclean like houses on shore, and ought to be purified by the like means; that fumigation and soaking in vinegar, will no more remove its nastiness from a ship, and a sailor's chest and hammock, than from a bed-room and foul linen in a boarding-house. Lime potash and soda, must be brought into action with their de-*

tergent and antiseptic powers. By application of the established methods of house-cleaning to ship-cleaning, we shall never permit a foul vessel to visit our cities; and what is more, we shall never grant a clearance to such an one to sail to foreign parts.

By such a purification of vessels, neatness, decorum and civility, will be introduced into the navigating world. The railing and clamour of nation against nation, as being lazars, will gradually die away; and on the ruins of the hypothesis, on which the existing plan rests, with its appendages of pride and prejudices, will be established a plain, rational, and practical system of commercial intercourse, which will diminish to a minimum the evils incidental to navigation, without extending illiberal suspicions and unnecessary restrictions towards the neighbouring nations.

A Dissertation on the Mineral Waters of Saratoga: including an account of the Waters of Ballston. Second edition—enlarged. By Valentine Seaman, *M. D. one of the Surgeons of the New-York Hospital.* New-York: Collins and Perkins: 12mo. pp. 131. 1809.

THE discovery and examination of Medicinal Springs, and the resort to them for the purposes of health and amusement, are becoming an important item in the progress of society in the United States. Almost every State in the Union can boast of possessing waters which have gained celebrity for their salutary properties. There is indeed reason to believe that our country contains a full proportion of these medicated fountains; and that their virtues, when further tested by experience, will be found to vie with those of any other region. This will excite no surprize, when we consider the extent of the territory in question, the diversity of climate, soil and surface in the several parts of it, and the vast variety of mineral productions with which it abounds, disposed in so many different modes as to the nature of strata, and their relations to one another.

The State of New-York is pre-eminently favoured by the bounty of nature in these fountains. Those which form the subject of this Dissertation have been frequented now for a long series of years, by a multitude of invalids, and many

of them have experienced their efficacy in the most satisfactory manner. Every returning season attracts a crowd, not only from this city and state, but from nearly all the other states in the Union; many in pursuit of health, but a much greater number merely coming in quest of the amusements and company which are generally found at fashionable watering places. In proportion as the number has increased, the accommodations for their reception have improved. A variety of resources has been provided for that portion of visitors whose object is principally pleasure and entertainment. Invalids of fashion and opulence likewise find most of the luxurious comforts which they have been accustomed to consider as indispensable to their well-being, and as adapted to promote the good effects of the waters.

The first edition of this Dissertation was published about sixteen years ago, and was very favourably received by the public. The second, now before us, is much enlarged and improved; and is further embellished by a map of the site and neighbourhood of the Springs, as well as by a view and section of the *Rock Spring*, at Saratoga, which has been always admired as an object of curiosity.

After some general introductory remarks, the author proceeds to give a topographical description of the situation of the several Springs, and of the adjacent country. He then presents an account of the physical properties of the waters, which is followed by experiments on the gas emanating from them. The various substances contained in these waters are, in the next place, ascertained by the several tests or reagents which are commonly employed by chemists for that purpose.

The results of the numerous experiments made by the author himself on the Springs of Saratoga and Ballston, and those of Dr. Vandervoort on the latter, to which he refers, seem to prove that the following substances are contained in these waters, viz.

Carbonic Acid,
Muriate of Soda,
Carbonate of Lime,
Carbonate of Soda,
Carbonate of Iron, and
Carbonate of Magnesia.*

As a specimen of the manner in which the subject is

* A sulphureous impregnation was also observed in the Springs of Saratoga.

treated, we quote the following account of the medicinal virtues and use of these waters in a number of diseases.

" These waters may generally be taken in very large quantities, without producing any uneasiness or sense of weight in the stomach; but in some instances they cause a sense of coldness, and sometimes, though very rarely, prove emetic. Some persons will drink several quarts within half an hour, without any inconvenience, otherwise than affecting the bowels two or three times, and operating very copiously by the kidneys. They at the same time produce a gentle diaphoresis. They however act more particularly upon the two last excretions, when taken in smaller doses, and often repeated, as from half a pint to a pint, every third or fourth hour.

" Their operation upon the bowels may pretty certainly be calculated upon, if taken before breakfast: if not taken till afterwards, they more generally affect the other excretions. Hence by a little attention to the time, and to the quantity taken, we are enabled to determine their action to such parts, as the nature of the case for which they are directed, may require.

" These waters generally exhilarate the spirits, and sometimes produce a very troublesome vertigo. In some persons they are said to induce a degree of inebriety, similar to wine. They not unfrequently cause drowsiness. They increase the appetite, and prove a pleasant stimulus to the stomach.

" Such are the effects of these waters upon persons in health; but as the medicinal virtues of mineral waters must depend upon the different substances that they hold in solution, so their application in the cure of diseases must be directed by a knowledge of the qualities of the predominating articles in their composition. Inattention to these considerations, still tends to support what former ignorance, as to their contents, originally established in respect to the use of them. They had proved efficacious in the cure of some diseases, but upon what principle was unknown. Hence, like most other remedies which gain a degree of reputation before their real qualities are known, they were looked upon as a kind of *panacea*, a cure for all diseases: so that to be *unwell* was a sufficient reason for applying to them for relief; they were indiscriminately taken in diseases of directly opposite natures: hence intermittents and hectic fevers,

pleurisy, dropsies, manias, dyspepsias, &c. all equally were found hovering there for help. When at the Springs, I saw a person who had come upwards of three hundred miles to drink the waters for the cure of a fistula lachrymalis, and no doubt many other poor sufferers have toiled through difficulties to get there, who finally, instead of meeting with a reward for their pains, have, to their cost, experienced not only no alleviation, but in some instances an aggravation of their complaints, for *an universal remedy is a perfect solecism.* It is an unquestioned law in medicine, that *that which possesses active curative powers in one set of diseases is equally detrimental in others.*

" The *carbonic acid*, *salt* and *iron* are the principles upon which we should chiefly ground our calculations in the use of these waters. The *alkali* may, in some cases, have its effects, and in others we may expect some advantage from the carbonate of lime. In regard to the comparative virtues of the waters of Saratoga and Ballston, little need now be offered: the former, particularly the Congress Spring, is somewhat the most purgative; they however, appear to be composed of very similar materials: it may generally, perhaps with propriety, of *them* be said, that " that which is best administered is best.

" Of the diseases for which these waters are prescribed, there is probably none which will more certainly support their reputation and keep up a round of company, than *Dyspepsia.* As long as the pamperings of luxury and the love of ease shall prevail over simplicity in diet and an active life, so long will the Springs be resorted to by a train of invalids. The change of air and exercise necessarily imposed thereby upon those who reside in large cities, the fruitful nurseries of such complaints, together with the material contents of the waters themselves, all seem calculated for relieving such affections. The carbonic acid furnishes the cordial exhilarating stimulus, the salt promotes digestion, while the iron restores the lost tone of the enervated stomach: at the same time the soda corrects the acidity so often predominating, and the whole composition, when judiciously managed, obviates that costiveness, so frequently an aggravating attendant upon them. Hence we have every reason for counting upon their salutary operation, and experience fully justifies our calculations.

" *Calculous complaints* are among those which apply there in the greatest proportion for relief, nor do they apply with-

out reason; the composition of the waters being such as would lead us, *a priori*, to look to them as a remedy. From the experiments of Saunders, Percival and Falconer, we learn, that calculi, immersed in water impregnated with the carbonic acid, were diminished. Priestley, Percival and others have proved that fixed air, as well as alkalies would, when taken into the stomach, pass through the circulation and appear undecomposed in the urine. Hoffman and other German writers speak highly of the efficacy of the Spa and other acidulous waters, both in preventing and dissolving the stone. Springsfeld observed that human calculi were diminished by being immersed in the urine of a person who drank of the acidulous waters, while that of a healthy person, not drinking of them, added to their bulk.

" Egan and Murray have again ascertained, that both lime-water and the carbonated alkalies destroyed and broke down calculous concretions out of the body. Ancient authority establishes the practical utility of the former, while it appears by the cases related by Beddoes and other modern practitioners, that the latter have been successfully employed in relieving both gravel and stone.

" Here then we have in these waters all the remedies that have proved the most efficacious in such affections, viz. a superabundant carbonic acid, the carbonate of soda and lime. Indeed the benefit experienced by those who have drank of them, fully answers our expectations. A number of cases have come within my own particular knowledge, and Dr. Powell, whose long residence at the Springs has given him a full opportunity of ascertaining the fact, assures me that *they are a valuable remedy in gravel, and that he has rarely seen a case of it, where relief was not obtained.*

" The powerfully antiseptic quality of the carbonic acid, has lately been successfully employed by means of the yeast poultice, in the treatment of ill-conditioned *phagedenic and gangrenous ulcers:* its efficacy in correcting their putrid nature, has been such in the New-York Hospital, that the surgical wards which formerly were distinguished by their peculiar offensive smell, have, since the more general use of this remedy, become as sweet and free from noisome scent as any of the other apartments. Beside correcting the putrid nature of the discharge from the ulcers, it also changes their disposition, favours the growth of healthy granulations, and promotes their healing. Now from the established salutary operation of this predominating principle in these wa-

ters, we can have no doubt but that they may be a useful remedy in such complaints; and indeed the general report corroborates that opinion. Dr. Powell says, that *in phagedenic ulcers the most happy effects may be expected from the use of them.*

" In *chronic rheumatisms* these waters have been said to be a remedy, particularly when their internal use has been accompanied by a judicious application of them as a bath. In *general relaxations of the system,* either from intemperance, or from a long residence in a hot climate, from the effects of syphilis, or from long and repeated courses of mercury, their conjoined stimulant and tonic powers promise to be of service.

" In *chlorosis* and other affections arising from *debility in the uterine system*, such mineral waters have been successfully employed; nor need we doubt of their usefulness, particularly if their operation is supported by due attention to exercise and a properly regulated diet. From their conjoined purgative, antiseptic and tonic qualities, they appear to be properly formed for the cure of *dysentery.* A person at the Springs, who was taking them for this complaint while I was there, informed me, they had formerly cured him of it.

" *Cutaneous eruptions* frequently prove obstinate of cure; they are consequently found in great plenty at these Springs; and I am happy to add, that they have generally disappeared by the use of the waters: for this purpose they must be used externally as well as internally. We need not be surprised that these waters are so very useful in such complaints; since they are gently diaphoretic, and their application in bathing, besides keeping the skin moist, also furnishes an alterative stimulus by means of the sea salt, carbonic acid and the sulphureous impregnation with which they abound, well calculated for the purpose*. The carbonic acid itself, when applied in another form, I have repeatedly found an effectual remedy in some obstinate herpetic affections, as the *psoriasis diffusa* and in the *palmata*, or what is commonly called the *salt rheum;* a simple solution of salt has also sometimes effected a cure.

" Their use in *hypochondriasis* and other *nervous affec-*

" * I am told that during the Revolutionary War, while the troops lay at Saratoga, many of them were affected with the itch, and were sent off in companies to these Springs, by which they were all cured.

tions, arising from the indolence and luxury of a city life, and consequently a considerable distance from the Springs, perhaps depends in a great degree, upon the amusing scenes, more simple food and constant exercise, which are unavoidably connected with a long journey: and if any advantage is gained *in consumptions* from their use, I rather suppose it owing to the same circumstances; since fixed air has, by those who have made experiments thereon, generally been found injurious in such affections. In fact, the common report condemns these waters as prejudicial in phthisical complaints, and individual observations support the popular opinion.

" These waters have also been in repute for the cure of *Dropsy*, and from their possessing such a conjoined stimulating and evacuative quality as already mentioned, it appears no way improbable but that, particularly in the early stages of the disorder, they may promote the absorption of the fluid in the cavities of the human body, and carry it entirely out of the system.

" There are likewise very satisfactory accounts of *Paralytic affections* having been cured, or at least considerably relieved, by the inward and outward use of the Mineral Waters.

" It has also been related, upon undoubted testimony, that *fevers and agues*, or *intermittents*, have frequently been cured by them. It is however said, to attain that effect, that they must, beside being drank, also be used as a cold bath just before the expected paroxysm.

" Among the diseases in which the waters may be usefully employed, perhaps there is none of more importance than *Scrofula*. It is remarkable of this disease, that most of the remedies which have gained any celebrity in its cure, have been composed in part of the muriatic acid. Salt water and sea bathing have been recommended from the earliest times, and still support a deserving reputation; of later date, the muriate of barytes and the muriate of lime have had their advocates; and perhaps no remedy, as an external application, has been found more useful than the muriate of mercury; and as an internal remedy, I may safely say that I have not witnessed any other preparation of mercury of more or equal efficacy.

" Besides these remedies, general stimulants and tonics, as bark and chalybeates have very properly been prescribed. Whether the carbonic acid of itself, has ever been ad-

ministered, I am not able to say. Marcard however *(Dissert. de Pyrmont.)* says that "*the mineral waters of Pyrmont*, which much abound with it, and whence their chief virtue is probably derived, *are employed in scrofula with much advantage.*" In the first edition of this work, not then having known these waters to have been used for that purpose, I ventured to suggest a trial of them in this complaint, considering that from their containing the muriate of soda (sea salt) and from their general stimulating and tonic operation upon the system at large; from their promoting the different excretions, and from their acting particularly upon the glandular system, they were calculated to be a remedy. I now have the pleasure to add, from the friendly communication of Dr. Powell, that "*in scrofula their usefulness is perhaps more uniform and extensive than in any other disease whatever; and so numerous are the instances he has witnessed of their happy effect therein, that he is inclined to believe a well-directed course of drinking and bathing, in those who are young, will totally eradicate its taint from the system.*"

"Of the use of these waters in the *removal of Worms*, little, from experience, can be said. Sulphureous waters have long supported a reputation as anthelmintics, particularly in cases of ascarides; but I do not know that the acidulous waters, such as those under consideration, have ever had a trial as a vermifuge. Were we, however, to reason from the known deleterious effects of the carbonic acid upon animal life, when applied so as to affect the organs of respiration, we should naturally conclude them to be a most powerful remedy for that purpose.

"From the experiment related in page 62, it appears that fish can live but a very little time in these waters. To determine their effects more particularly upon the life of worms, the common earth-worms were subjected to the following experiments: some were suspended in carbonic acid gas, which produced immediate agitation and contortion of their bodies; this soon subsided, and in the course of from two to three minutes they became perfectly relaxed and motionless. Others were immersed in water, impregnated with the carbonic acid, they instantly moved about very briskly, but in two minutes became entirely motionless and apparently dead. These experiments were frequently repeated, and with similar results. Other worms were im-

mersed in an artificial Saratoga mineral water, with like effects.

"Now as these worms are so similar to those that most generally exist in the human stomach, it is no more than fair to conclude, that they also would be equally affected by the same means.

"Hence then, as the whole alimentary canal may be safely inundated with these waters, is it not highly probable that they will prove a complete remedy in such affections? It must be observed, however, that in these experiments, the worms when subjected for so short a time only, to the operation of this deleterious acid, recovered in a few minutes after being restored to the atmospheric air: but a restoration to pure air could not be effected in the bowels; particularly when under the free use of these waters; for then they must be constantly exposed to the carbonic acid, until they would be dislodged and carried out of the body. With this view then the waters should be taken in large draughts and upon an empty stomach, to secure their purgative operation.

"Notwithstanding worms will revive after having been exposed for only a few minutes to the operation of the carbonic acid, either in its gaseous state or when united with water, still it will, upon a longer exposure, effectually kill them. By suspending some of them in the air, and by immersing others in the water impregnated with it, they died irrecoverably in less than two hours.

"Should these waters not act sufficiently upon the bowels, they may be accompanied with some aloetic or other suitable purgative medicine. I have known an instance where the mineral water of Bedford, in Pennsylvania, dislodged and brought away a considerable portion of a tinea or tape-worm: its expulsion was finally completed by taking the male fern and purgatives.

"Would not injections of simple carbonated acidulous water, conjoined with a little laudanum to secure their retention for a time in the bowels, rout the pestering little *ascarides* or *thread-worms* from the rectum, where they so often obstinately resist almost every means usually employed to remove them? I have frequently prescribed decoctions of the spigelia, (carolina pink) in that manner, in such instances with success. The acidulous waters are certainly much more immediately destructive to the living power of worms.

"All these observations apply particularly to the acidulous Springs. The *sulphur water*, I imagine, may be more usefully applied in *cutaneous eruptions*, particularly the itch; however I do not know of any trials having yet been made with it in any complaint."

This publication possesses much merit, and evinces in a strong light the assiduity and enterprize of the author in the prosecution of an object of great importance to the public. It is likewise very seasonable, and adapted to convey a body of practical and accurate information, always much wanted by those who visit these watering places themselves, or find occasion to recommend them to others. No person will undervalue the labour bestowed in this performance, who recollects that the analysis of mineral waters is one of the most intricate and difficult subjects of chemical research, and requires a very extensive acquaintance with the properties and relations of a numerous class of substances. We conclude by expressing our hopes, that the instruction contained in this manual may become familiar to the intelligent invalids who determine to visit these waters, and especially that it may receive from physicians, who are anxious to understand the subject, a deliberate and attentive perusal.

An Inquiry into the use of the Omentum. By James Rush, *of Philadelphia.*—T. & G. Palmer.—8vo. pp. 36—Philadelphia, 1809.

THIS is an inaugural dissertation for the degree of Doctor of Medicine, drawn up in obedience to the statutes of the University of Pennsylvania. As these publications are generally prepared merely to comply with academic regulations, they are scarcely considered, in common cases, as objects of review or criticism. When they contain, however, matter of any peculiar importance, either in a speculative or practical point of view, they demand attention as much as performances which come before the public in any other manner.

The dissertation now before us deserves to be considered as possessing these extraordinary claims to public notice. The physiological principles contained in it are, in many

respects, ingenious and important; and in the minds of all who admit them, they will lead to pathological and practical conclusions of much interest in the cure of diseases.

The author considers with due attention the several uses which have been ascribed to the Omentum by the generality of physiologists. He is unwilling to admit its supposed use in lubricating the contents of the abdominal cavity, with which it lies in contact; in filling up the inequalities which arise from the rounded forms of the viscera, and especially from the convolutions of the intestines; in preparing blood for the secretion of bile; and in protecting the intestines from the operation of cold.

Having discarded these several opinions as untenable, he proceeds to assign a destination for the Omentum, which he believes to be more conformable to reason and to accurate views of the animal economy. He endeavours to prove that it is *an organ for the secretion of fat, furnished with cells for its reception, in order to supply the body with nourishment when the resources by the stomach fail.*

The first part of this proposition agrees so entirely with prevailing opinion, and indeed is so palpably and undeniably true, that he thinks it unnecessary to dwell upon the proof.

The second part of the proposition is that which requires support and illustration, and which it is the main object of the dissertation to establish, viz. that *the Omentum is intended for the purpose of supplying the body with nourishment, when the resources by the stomach fail.* This opinion is maintained by the following arguments, as expressed in the words of the author.

" 1st. *From the situation of the omentum*, being in that part of the body where it can afford none of those offices, which the fat in other parts of the system supplies. These are, giving shape to the body, lubricating for the advantages of motion, filling up unavoidable cavities, and serving as the envelope of some viscus or organ. Here is no rugged angle of feature to be smoothed. Here is no eye whose delicateness the contact of bone would injure.

" 2d. *From its little sensibility*, known from the removal of parts of it, and from its circumstances in hernia and wounds. From this I would infer an aptitude for its intention to admit of variation in its size by its distention with fat: a property which, had it not possessed, would have subjected it to the inconveniences of pain.

"3d. From its presence in so many animals, taken in conjunction with

"4th. Its absence in others. It would be tedious to enumerate the different animals in which this viscus is found, as well as those in whom it is wanting. The exceptions to it, give the best idea of its use. For here, as in the forms of mathematical evidence, the substitution is more easily understood. When the omentum is wanting, its place is supplied by a substance which allows scarcely a doubt of its use, and to ascribe to that substance the generally received uses of the omentum, would be absurd. There is only one office, which these adipose substances appear capable of affording, and that is, the nourishment of the body by their fat. This, indeed, is universally allowed. Haller, speaking of the use of the omentum, says: "Quæ tamen animalia omento destituuntur, iis adipis massa pro omento est; avibus nempe aquaticis aliisque et piscibus.*" But without the argument arising from this circumstance, even were this substitute wanting, still its absence would not be an unanswerable objection. The qualities that animals possess are variously, but not partially bestowed. Hence the want of one is supplied by the presence of another similar to it, or equally important. If the omentum should be wanting in some animals, this would not prove that they were denied the advantages that others received from it, or that it was useless in those that had it. It would be explained by these three circumstances: first, that the animals had other peculiarities of structure, as important; secondly, that fat was to them not so necessary; or, thirdly, that the existence of this fat would be inconsistent with some other property more advantageous to the animal.

"5th. I infer the use I have ascribed to this viscus from the state of the omentum in *hybernating animals*. Besides the quantity of fat throughout the cellular membrane generally, and an omentum much distended with it, these animals have two lateral appendices, like the omentum in their structure and intention. Haller speaks of this appearance in some of these animals, "ut sint tria quasi omenta†." Now, what is the occasion of this great provision? The only circumstance that distinguishes these animals from others, is their remaining, for a certain time, without the

* Elementa Phys. vol. vi. p. 381.

" † Ibid. vol. vi. p. 381.

resources of the stomach for food. Corresponding to this is the state of the omentum. There is no other peculiarity of these animals that requires this difference. There is not more need for lubrication, not more oil required for the bile, nor is it necessary for any other of the imaginary uses ever ascribed to the omentum.

" Some of the species of the hybernating animals are destitute of the omentum. The account given of such animals will sufficiently obviate any objection that might arise from it. Cuvier, in speaking of the hybernating class, says, " Les oiseaux des mœurs analogues, tels que l'hirondelle de marais, plusieurs reptiles que hibernent de même sont depourvus aussi de ces membranes graisseuses; il est vrai que leur *peritoine* se charge pendant l'hiver *d'une graisse abondante.*"

" 6th. From the defect of fat in the omentum of the fœtus. " Tenue in fœtu, in adulto homine varie obesum*." This is a fact of great importance. In the fœtal state the supply of nourishment is nearly uniform. The minute arterial connection of the placenta with the uterus, prevents the effects of a hurried or disordered circulation upon the fœtus. Hence there is but little alteration of the volume of blood sent to it, under every irregularity of the mother. With such a constant and unvaried supply, the office of the omentum in the fœtus would have been unnecessary. Soon after birth the fat is deposited, for then the want of it begins to be felt.

" 7th. I infer it, from its distention with fat more particularly than any part of the body, in those disposed to obesity. Whatever purpose the fat serves, that must be more eminently in view in the omentum, as it contains the greatest quantity. It has been shown that its offices in other parts of the body have no concern here. Its more obvious and important intention of serving as nourishment, alone remains of its uses.

" 8th. From its state when divested of fat; being reduced to a slender contracted membrane, and so much diminished, as to be apparently not fitted for any purpose in the animal economy. The histories of dissections contain many accounts of a partial or total loss of this viscus.

" 9th. From the structure of the omentum. It is vascular for the secretion, and cellular for the reception of fat, and is provided with lymphatics for its removal.

" * Elementa Phys. vol. vi. p. 367.

" 10th. Lastly, I infer that the intention of the omentum is to afford nourishment to the body, from the connection of certain states of this viscus with the diseases of the liver."

We are sorry that our limits do not permit us to insert the whole of the ingenious chain of reasoning, fortified by facts and authorities, which is adduced in support of this opinion. On the same account we are also precluded from introducing that portion of the argument which connects the author's doctrine with the office of sanguification assigned to the liver*, according to the physiological opinions of his learned and excellent father, Dr. Benjamin Rush.

The practical applications of this doctrine concerning the functions of the Omentum are so important that we cannot omit to lay them before the reader.

" The first inference that presents itself, from the doctrine I have delivered, is an argument for copious and protracted blood-letting. ' In an adult man,' says Richerand, ' of moderate rotundity, the adeps constitutes a twentieth part of the weight of the body†.' This, upon a moderate computation, would give seven pounds of fat for the supply of the body; a quantity sufficient for its nourishment a considerable time. That it should not sustain it as long as the same quantity of aliment taken by the stomach, should not surprise us, for some of the effects of famine are to be considered as arising, not from the want of additions to the body, but from the derangements which the system suffers through the medium of the stomach. The proper state of this viscus is necessary to the health of the whole body. When the absence of its natural secretion causes disease there, no wonder that the evil of famine is doubled. We should in vain attempt to subdue a pulse by blood-letting, if, at the same time, we should give rich soups to our patients, and yet even a more nutritious substance than this the body is supplied with by its fat. Depletion, when required, may be continued till that quantity appears to be exhausted, for not till then will it be effectual. Whence, if not from the fat, can be derived the full pulse which attends a chronic fever, when blood has been copiously drawn, and the stomach has long rejected food? Let not then the fear of weakness from venesection or abstinence forbid the use of the lancet.

* See Medical Repository, Hex. II. vol. iv. p. 101.

† Richerand's Physiology, article lxxv.

"Secondly, From the preceding facts and reasonings, can be drawn an answer to the common objections to fasting in the cure of inflammatory fevers, or other diseases requiring depletion. I have already spoken of an *advantage* to be derived from the use of this remedy in dropsy. The *evils* that are apprehended from this mode of treatment, are all prevented by the slow, yet equable supply of nourishment which the fat supplies to the body.

"A third observation, more particularly applicable to the function of the liver, is the case of a diseased stomach, when it cannot perform its office in chylopoiesis. That wisdom which made the stomach, foresaw its derangement; and it completed the fabric of the body, by giving fat to supply the place of food, and a liver for its conversion into nourishment.

"Lastly, let us subscribe to the doctrine of final causes. Aliments, according to their nutrient power, have been divided into grades. Sugar, as containing the most nourishment under the least bulk, ranks first in this order. Oil is next to this; and fat, as uniting other properties for the advantage of the body, was the most suitable substance for its purpose. That obesity which to our eyes may sometimes appear disgusting, is perhaps not a partial evil, but a general benefit. The omentum, which has been considered as useless, or supposed to perform very subordinate functions in the system, appears, from the foregoing facts and reasonings, to *be a store of aliment for disease and famine.*"

We cannot take leave of this dissertation without avowing our conviction of the importance of these doctrines, and of the extensive application they bear to many circumstances of health and disease; nor without expressing our wishes that the author, after such flattering success in this inquiry, may be hereafter induced to continue his attention to it, and, on every favourable occasion, to direct his researches to other obscure parts of the animal economy.

The Philadelphia Medical Dictionary: containing a concise explanation of all the terms used in Medicine, Surgery, Pharmacy, Botany, Natural History, Chemistry, and Materia Medica. Compiled from the best authorities. By John Redman Coxe, M. D. *Philadelphia:* Dobson: 1808: 8vo.

FOR the basis of this Medical Dictionary, Dr. Coxe has taken that of Fox, revised and augmented by Bradley. By adding to the original whatever was judged proper and useful, he has much enhanced the value of the work, and accommodated it better to the state of medical knowledge in this country.

In framing scientific dictionaries, it is very difficult to guard against the opposite extremes of deficiency and redundancy, of brevity and prolixity. The only mode of removing this difficulty seems to be to furnish the public with a variety of them, constructed on different plans, so that the wants and the choice of every one may be duly consulted. On many accounts it would seem expedient to disencumber these compilations of obsolete words; and yet, by many persons, and on many occasions, they are sought after with great avidity, and the inquirer is much disappointed in failing to find them. We think Dr. Coxe has selected a plan which suits a large body of readers, that it is sufficiently remote from the fault of embracing unnecessary matter, and that he has executed it in a careful and judicious manner.

MEDICAL AND PHILOSOPHICAL INTELLIGENCE.

DOMESTIC.

Remarks on the uncertainty and danger of employing the Probang in certain cases of obstruction in the Œsophagus: communicated in a letter from Samuel Bard, M. D. to Dr. Miller.

IN your valuable work, the Medical Repository, vol. 12, page 339, is related a case of fatal effects from a foreign substance lodged in the œsophagus: in which case it had been attempted to remove the foreign body by means of the probang. I remember another case, in which a plum-stone was forced through the coats of the œsophagus by a similar attempt, which likewise proved fatal. The use of this instrument must necessarily be uncertain; and unless it succeeds very happily, (I had almost said accidentally) to dislodge the offending substance, without injury to the œsophagus, it will most probably do much harm; for it forces the body down in the same direction in which it entered the œsophagus, and if sharp pointed, it is just as likely to drive it through as to dislodge it from the œsophagus.—These considerations induced me many years ago to lay aside the use of this instrument; and wherever in cases of pins, fish bones, and such substances sticking in the throat, I could allay my patients apprehensions, and persuade them to remain quiet, I have generally found them removed in a short time. But the irritation of such substances is extremely distressing, and it requires more resolution than most persons possess, to remain quiet and resist the continual efforts to swallow, which it brings on; at the same time that a spasmodic contraction of the œsophagus upon the offending body generally prevents its removal and descent. In such cases I have been in the practice of giving a large dose of opium, and do not remember a case, although several have been very alarming, in which it proved ineffectual. I particularly remember several like that related by your

correspondent, in which old people, by swallowing their food without chewing, have had it stick in the passage. In these I believe the obstruction to arise as often from a spasmodic contraction of the œsophagus, as from the size of the bolus, and have always succeeded in removing it by taking off that contraction by means of laudanum. Although in one case, it required a second dose. Even where a sharp substance has actually stuck in the œsophagus, I have found it removed during sleep; and have supposed that in such cases, if no forcible means are made use of to remove it, the patient being kept quiet for a few hours, an increased secretion of the mucus will take place, which surrounding and adhering to the offending substance, will partly dislodge it by its weight, and enable the patient to remove it by swallowing.

If you think these remarks calculated to create a proper caution in the use of the probang, and to recommend a safer practice, before recourse is had to so uncertain a remedy, you are at liberty to make them public.

Bard's Prize-Herbarium, of the Vegetables in Mid-Lothian.

By the generosity of Charles Buxton, M. D. the New Medical Institution at New-York has become possessed of the herbal of dried Scottish plants, which were gathered in the neighbourhood of Edinburgh, by Samuel Bard, M. D. It was for this collection that this gentleman, while a student at the University, gained the prize-medal, offered by Professor John Hope, for the best herbarium of indigenous vegetables, systematically arranged.

This is an honourable monument of Dr. Bard's youthful industry. The specimens, though prepared as long ago as 1768, are nevertheless in fine preservation, and bound up in a large folio book. And Professor Mitchill, on receiving this valuable donation, observed that " after forty years of suspended animation, these plants should put forth leaves and blossoms anew, and form a verdant and flowery garland, for the temples of him who prolonged their existence to so distant a day, and embodied them into a volume of instruction for the rising generations."

Analysis of the Stone of the Islands of Fegee, employed by the Savages to make their Axes. By David Bailie Warden, Esq. Consul-general of the United States at Paris.

This stone offers in its fracture a compact homogeneous grain, similar to that of porcelain: its colour is of a blueish brown: it is susceptible of a fine polish: its hardness is considerable, and it possesses a certain degree of elasticity.

1st. 100 grains of this stone, reduced to a fine powder, were treated with three parts of caustic potash: the colour of this fusion was greenish: the whole, diluted in a sufficient quantity of water, was treated with an excess of muriatic acid, evaporated to siccity, and then again diluted in water. The silex, separated by these means, after having been washed and dried, weighed 58 grains.

2d. The filtered liquor was precipitated by an alkaline carbonate; and the precipitate washed, and treated by pure caustic potash, gave 12 grains of alumine.

3d. The portion, not soluble in caustic potash, was treated by an excess of muriatic acid, and this new dissolution precipitated by means of ammoniac, gave a quantity of red flakes, similar to those of oxyd of iron. These flakes were dissolved by muriatic acid, and to separate the manganese, which might be contained, we poured into this muriat a certain quantity of saturated carbonate of potash, which after a certain time deposited red flakes. When the liquor swimming above was perfectly without colour, it was filtered; and the residuum washed and calcined, gave 8 grains of oxyd of iron.

4th. The uncoloured liquid, which contained the manganese, treated by the common alkaline carbonate, produced a white precipitate, which when calcined gave $4\frac{1}{2}$ grains of manganese.

5th. The liquid (No. 3.) after having been treated by ammoniac to obtain the iron and manganese, was precipitated by oxalat of ammoniac: an oxalat of lime was precipitated and $2\frac{1}{2}$ grains of lime obtained from this precipitation.

6th. The remaining liquid, by means of an alkaline carbonate, gave a precipitate of carbonate of magnesia equal to four grains of this earth.

7th. The totality of the products of this analysis giving 89 parts only; it was repeated with nitrate of barytes.

100 grains were treated by 400 grains of nitrate of barytes in a crucible of platina. The substance was then diluted in water and treated by the muriatic acid: the liquid being evaporated to siccity, the substance was then diluted in water, to which were added a few drops of muriatic acid, and filtered. The silex remained on the filter, the liquid was precipitated by the carbonat of ammoniac, filtered and evaporated to siccity: the substance which remained was treated by the sulphuric acid, and exposed to a red heat in a crucible of platina to volatilize the sulphate of ammoniac: there remained in the crucible, a fixed salt, which was found to be a mixture of sulphate of soda and of potash.

Silex	58 grains,
Alumine	12
Iron	8
Manganese	$4\frac{1}{2}$
Lime	$2\frac{1}{2}$
Magnesia	4
Soda and Potash	9
	98
Loss	2
	100

Sulphate of lime of Onandago, State of New-York, analysed by David Bailie Warden, Esq. Consul-general, &c.

1st. 100 grains calcined, in a crucible of platina, experienced a loss of 21 grains.

2d. The 79 grains which remained, were pulverised and treated by saturated carbonate of potash.

3d. The sulphate of lime and carbonate of potash were then boiled together in a phial for half an hour; the liquid was filtered, and the carbonate of lime remained on the philter. Then, after being strongly calcined in a crucible of platina, the lime weighed 32 grains.

4th. The liquid was treated by the muriatic acid, and precipitated by the nitrate of Barytes.

To ascertain whether the lime, after it was calcined, contained any carbonic acid, diluted nitric acid was poured upon it, and there was no disengagement of gas.

The sulphate of Barytes, well washed and dried, weighed 142½, corresponding to 47 of sulphuric acid: consequently 100 grains of this gypsum contain,

Water	21
Lime	32
Sulphuric acid	47
	100

I showed the above specimen to Mr. Haüy, who, comparing it with that of Pevey, Department of *Mont Blanc*, found it to be exactly similar; and he has given it the same name, *chaux sulfaté laminaire nacrée.*

Facts showing the great length of time that vegetable seeds will lie in the earth without putrefaction or germination: Communicated to Dr. Mitchill by James Sloan, Esq. of New-Jersey.

The following facts, two of which are derived from a source that I cannot doubt, and the other from my own observation, prove the great length of time that white clover-seed will lie under mud and water without perishing; and when brought near enough to the surface of the earth to feel a proper degree of heat and moisture, vegetate and grow: and these, with many others of a similar nature, that I have observed, have long since convinced my mind that that vegetable can only be produced by seed or germ; which I also believe to be the case with all others.

1st. Part of Petty's Island, in the river Delaware, having been banked in, and sown with white clover, and after remaining in that situation a considerable time, the bank was let go down, and the tide overflowed it eighteen years, when a law was passed for banking in the whole. Then it appeared by cutting drains that the sediment of the water, during the time it was overflowed, had raised the surface about twelve inches; and in that part of the island that had been before banked in, in the edges of the drains between the new and old soil, there came up a considerable quantity of white clover; whereas in that part that had not been banked in before, none appeared until sown, carried there by cattle, or by some other visible means.

2d. The second was a similar proof in Salem county, differing only in length of time; the meadow having been

overflowed twenty-five years, and the surface raised eighteen inches.

3d. The third was a fact within my own knowledge, viz. on the 14th of March, 1786, I completed the erection of a dam across the mouth of Newton creek, whereby the tide was prevented from flowing over a large quantity of mud flats, lying outside of the banks formerly made. Some of these banks had been made upwards of a century, and great part of that time the top and outside, as far as the tide-water would permit, were covered with white clover; the seed whereof must consequently have rolled down the outside of the bank, and, lodging upon the mud flats, been soon covered with the sediment of the water. Shortly after shutting out the tide, I observed great quantities of white clover coming up on said flats, near the edge of the bank, but no where else. During the summer, I frequently examined the flats farther distant from the bank, but never discovered a single plant of clover, or any other valuable grass, such as we sow in our meadows after banking them in: farther off the bank it appeared evident; the seeds having rolled down the outside of the bank, had been removed a small distance by the motion of the water. The flats at a distance from the bank being of the same quality, (as was fully proved by the growth of clover after sowing, or the seed being otherwise introduced) must, in case that vegetable could be produced without seed or germ, (as some erroneously assert) have produced it as soon, and in as great abundance, as that adjoining the bank.

Note from Cadwallader D. Colden, Esq. concerning Dr. Colden's tract on yellow fever.

I am sorry I had not the pleasure of seeing you when you did me the favour to call this morning. Since your note was handed to me, I have unsuccessfully searched for the manuscript you mentioned. It must have got into the great mass of my grand-father's manuscript papers, which I have in my possession. It cannot be lost, and the moment I have leisure I will look for it again, as I should be very happy that it should fall into hands so capable of making it useful. In the year 1801, or 1802, I published some extracts from it in Lang's paper; and it is mentioned in

the life of Lieut. Gov. Colden, published by Hardy, in his biographical dictionary. It was presented by the author to the Corporation, and he received their thanks for it. From this circumstance, I should suppose it was in print.

Hills's Map of the Country round Philadelphia.

A plan of the city of Philadelphia and its environs, was prepared during the years 1801-7. The surveyor is John Hills; and he published his work in May, 1808. It includes the city and the adjoining country for the distance of ten miles around the centre-square. The space is marked by as many concentric circles, one mile distant from each other, which present to the eye, in an instructive manner, the corresponding distances of places in all directions. The region embraced by it consists of Philadelphia city, a considerable part of Philadelphia county, a part of Delaware county, in Pennsylvania, and a good portion of Gloucester county, in New-Jersey. The Northern Liberties, Southwark, Moyamensing, Passyunk, Kingsessing, Darby, Haverford, Merion, Blockley, Roxborough, Germantown, Bristol and Cheltenham, with sections of Tinicum, Redley and Springfield, are delineated with their proper sites and boundaries: as are also Deptford, Gloucester, Newtown, Waterford and Chester, though with somewhat less distinctness. The Delaware and Schuylkill rivers, with their tributary streams, and the islands which they contain, are pourtrayed with minuteness. The county lines and town boundaries, as well as many small grants and patents, are accurately noted. The public roads, carriage ways, houses of worship, school-houses, villas, bridges, taverns and mills, within the prescribed limits, are particularly marked.

Considering that the city of Philadelphia was founded so late as 1682, the view of a surrounding country, so populous and so highly cultivated, fills the mind with exalted ideas of the rapid improvement it has undergone. Topographical descriptions, to accompany maps of this kind, are exceedingly desirable; and this, indeed, is so much the case, that without such local and statistical accounts, maps lose no small part of their worth. We hope that our geographers will receive a hint from tourists and other travellers.

As it has become a fashion with the two latter classes to publish maps for companions to their books, so it would be very desirable that the former would accompany their maps with books of explanation, especially of those matters which cannot be expressed on the faces of maps without overloading them. Should any of the New-York surveyors follow the worthy example of Mr. Hills, we can assure him that the city of New-York, and the surrounding region, between Hærlem and the Narrows one way, and from Newark to Gravesend the other way, with the waters, villages and growing improvements, would be a most beautiful and interesting piece of topography.

Religious Medals and metallic Tokens, found in the Western part of New-York.

The Western, and part of the Eastern district of New-York, was formerly the country of the five Indian nations. These were called *Iroquois* by the French, who colonized the banks of the Saint Lawrence River, of Lake Champlain, Lake George, and the Upper Lakes. This region was then considered a part of Canada, as was also a portion of Pennsylvania, and the country extending towards the Illinois, where the state of Ohio, and the Territory of Indiana, have been since erected. Such was the original extent of Canada. Various military and religious relicks of French manufacture have been found in these regions. Among others, latterly, a number of figured pieces of metal have been discovered in the town of Pompey, county of Onondago, which were obligingly put into our hands by *Benjamin Ledyard*, Esq. of this city, who had received them from *Mr. Benjamin Sanford*, a resident near the spot where they were found. On this spot, traces of a battle and of the slaughterof a considerable number of men, indicated by a great mass of human bones and other relics, are distinctly seen. Whether the slain had consisted of French troops from Canada, or of Indians, may perhaps admit of doubt. If the latter, these pieces indicate the zeal of the Jesuits to convert the aborigines to Christianity. They are regularly coined, and have handles or loops, through which strings may be passed to suspend them from the neck, on

the breast of the wearer. We shall describe a few of them, as they lie before us.

1st. A copper piece finely coined, and nearly as large as a half dollar. On one side, is a head of Jesus, with the words SOLE CLARIOR; and on the reverse, the blessed Virgin, with the sentence MATER CHRI ORA PRO; meaning, doubtless, *Mater Christi ora pro nobis.*

2d. A piece of nearly the same size, on the face of which is the Virgin, crowned with the sun, and with the moon under her feet, with the inscription B. VIRGO SINE PECCA. ORIGINALI CONCEPTA; "the blessed Virgin conceived without original sin;" and on the back of this is the custodia for elevating the host, supported by two kneeling angels.

3d. An elliptical piece, apparently a mixture of copper and silver, on which is a representation of St. Francis with a crucifix, with these letters, S. FRANCISCUS; and another of the holy Conception.

4th. A copper piece, rather smaller than a cent, with crosses on both sides, and with letters which we do not fully comprehend. Besides IHS, which are sufficiently intelligible, are these, SMOLIVBVRSNSMV. And on the other side other letters curiously arranged.

5th. An octagonal little piece of brass, prettily impressed with a Saint Theresa on one side, and our Lady of Mount Carmel supporting the infant Saviour on the other.

6th. A small piece of about the size of a cent, with our Lady of Loretto on one side, and the anointed and glorified head of Christ on the other.

Curious directions of the Storge of Animals.

The natural impulse, by which female animals rear and protect their young, has long been a theme of remark. This useful and admirable propensity has also been observed to assume curious directions. It is not intended hereby to support the story of Jupiter's having been sucked by a goat, or of the nourishment that Romulus and Remus derived from a wolf; but simply to reiterate a fact of actual and recent occurrence at New-York; of which there are scores of witnesses.

On board the British ship Hercules, lying in the port of

New-York, during June, 1808, there were two female animals in a gravid condition. One was a house-cat, and the other a terrier bitch. The bitch littered about twenty-four hours sooner than the cat, and was almost immediately seized with a sickness, of which she died the next day. The cat brought forth her young in the neighbourhood of the surviving and starving puppies; and, moved by the moaning and cries of the perishing little whelps, she went to the place where they were groping about in their blindness, and carried one of them gently to her nest.

This being observed by a seaman, he naturally enough supposed that the puppy would soon be devoured, to support the cat under the operation of sucking: but he was greatly surprised and disappointed on finding that she nourished the motherless creature with her own milk. This being done, she was shortly after seen to fetch another of the young dogs to her family of kittens. To this also she administered the teat.

The Captain being informed of these unexpected proceedings, availed himself of the fondness of the cat for the puppies, to preserve them from death. The breed of the little dogs entitling them to a preference, five of the kittens were thrown overboard. In the place of her drowned offspring, the dam admitted an equal number of the puppies. And to ensure success to the experiment, two of the kittens were continued alive; so that the nurslings consisted of five puppies and two kittens, suckled in one litter by the same cat. She made no distinction between them; but seemed as much attached to her foster-brood as to her own. The spectacle was really curious and interesting.

In addition to this, we merely mention a more extraordinary case, related a few years ago of a cat giving suck to a young rat! [See New-York Magazine and Review, vol. 3, p. 739.]

Lead in a metallic state, discovered within a Spruce Spar.

Mr. Wagstaff, of the city of New-York, has in his possession a top-sail yard, made of the wood of the spruce tree. It is neat, sound, and of excellent texture. As is usual in that sort of timber, it is interspersed with knots, as they are called; that is the hard and dry remains of dead branches.

On dressing out this spar for a ship's use, the carpenter discovered something peculiar. On examination he found this singularity to consist in films or plates of metallic lead, lying between the dead branches or knots and the contiguous parts of the wood. These thin sheets of the metal seemed as if they had been insinuated between the defunct limb and the growing parts of the tree, while it was yet alive. They as it were, lined the cavity in which the deceased limb was contained; or in other words, they formed a cover to the dry branch, investing it like a membrane.

The situation of these pellicles of metallic lead was such, that they could not have been placed there by any process of art. It was inconceivable that any oxyd of lead, applied in the form of paint, could have penetrated so far, and have undergone a reduction there. And there is great difficulty in explaining so odd an occurrence from any operation or production of the vegetable economy. The fact however is well established; and has received the concurring testimony of many witnesses. And although the full solution of so strange an occurrence, may not, at present, be within our power, it is nevertheless our business to record and preserve it; with the expectation that at some future day, some more successful reasoner may interpret it satisfactorily, and assign to it a proper place and value.

Dry wood acquires Electricity, by Friction in some cases.

It has long been known that dry wood resembled glass and sealing wax, in being an imperfect conductor of electricity. It has not been so generally observed, that under some circumstances dry wood may acquire electrical qualities by attrition. A fact on this subject was in the spring of 1809, pointed out to Dr. Mitchill, by Mr. E. Burling, who had for some time previous noticed it. *The shavings pared with a plane from a pine board, by a carpenter, became endowed with attraction and repellency.* This however is not always the case. To make the experiment succeed, the instrument must be applied to the broad side of a board, that is rough from the saw mill, and well freed from moisture. When a plane-iron is briskly applied to such a surface, both the edged metal and the ribband of wood which it tears up, acquire heat by the friction. And during the few seconds

that this warmth continues among the fillets and fragments of the separated wood, there are manifestations of electrical action among them. The lighter and thinner shavings are attracted, the smaller chips and splinters undergo quick motions, and their agitation is rendered more evident by the presentation and near approach of the human finger. By this they appear to be drawn, and these detached particles leap into contact with it. But they very soon lose their attraction and drop off. As soon as they are cooled, the excitement abates, and the electricity vanishes.

This quality, which dry wood occasionally acquires under the enumerated circumstances, seemed worthy of being mentioned; and the fact is accordingly added to the mass of information on the subject.

Extraordinary powers of the Human Stomach, exemplified in the case of a man who swallowed knives.

William Cumming, an American seaman*, while in France in 1799, seeing some itinerant jugglers pretend to swallow knives, was induced in a moment of intoxication, to do the same in reality, and actually swallowed *four* clasp knives, such as sailors commonly use: all of which he got rid of in a few days, without much inconvenience. Six years afterwards, he performed another feat of the kind at Boston, by swallowing *fourteen* of different sizes: by these, however, he was much disordered, but recovered in the infirmary at Charlestown, near Boston, where the knives are preserved. Being captured on board an American ship by the British frigate Iris, in the latter end of 1805, he entered the British service; and having boasted of his former exploits, he was unfortunately prevailed on to gratify idle curiosity, by swallowing *seventeen* on two successive days: he was immediately seized with violent pains, incessant retching, and other alarming symptoms, requiring the aid of the surgeon under whose care he remained for eighteen months from that time, when he was discharged as unserviceable. He was twice in Guy's Hospital, under Dr. Babington, in 1807, and was again admitted in 1808, by Dr.

* This man is credibly reported to have been born in the city of New-York near which some of his relations are now living.

Gurray, under whose care he continued for the last seven months of his life; the whole of that time being passed in almost constant pain, and progressive wasting, until the end of March, 1809, when he died.

On examining the body after death, *fourteen* knife blades and a number of back-springs, were found in his stomach; all of them much corroded, and some nearly dissolved. A brass button, and part of the lining of a silver knife were scarcely affected: but the horn handles, and iron linings of the other knives were either dissolved, or had been passed downwards.

The immediate cause of his death was the back-spring of a large clasp knife, which had penetrated through the intestines into the cavity of the belly. Two other back-springs had got down still lower, and were fixed across the gut, so as to be felt by the finger. Though the blades and back-springs found in the stomach were extremely ragged and sharp, yet this organ was not penetrated by them in any part; and what is still more surprising, he could bear considerable pressure there, and at times took food with appetite.

Cumming was remembered to have been in Charlestown hospital, in 1807, by a gentleman from Boston, now in London; and if any doubt could remain after the inspection of the body, his exploits on board the Iris at Portsmouth have been confirmed in the fullest manner by Capt. Ommany, the commander, and Dr. Lara, of Portsea, who was a surgeon of that ship.

The knives as taken out of the stomach, with the stomach itself, are preserved at Guy's hospital; and it is understood that Dr. Gurray is drawing up a complete history of the whole case, to be laid before the public either in the Philosophical transactions or some other periodical work. Many of the knives he swallowed were four inches long, and one inch and a quarter across the widest part of the blade and the handle.

The Cochineal Plant and Insect alleged to have been found in South-Carolina.

In our Hex. II. Vol. i. p. 291, we gave an account of Mons. Menonville's attempt to carry the Nopal and Cochineal of Mexico to Saint Domingo; and of the unfortunate

termination of his labours and his life. It now appears that this insect has been found in South-Carolina, where it is indigenous; and has lived on the prickly pear, its natural food, from the settlement of the country to the present time, undiscovered. The reality of this discovery seems to be admitted on all hands. But the merit of it is disputed by Mons. Carendeffez and Mons. Noisette. The former of these gentlemen has ascertained that this animal withstands a Charleston winter, by retiring a little from the cold. He has transplanted the cactus with the cochineal insects on its leaves, to his own garden, and procured thence a sample of that invaluable dyeing drug, in perfect condition. And he has observed the parent-insects multiplying their species in the most lively manner.

From all this, there would seem to remain no doubt that cochineal could be produced in Carolina, to any extent the cultivator might think proper; and thereby add materially to the valuable productions of our country. As Menonville's volumes contain the best body of information on this subject, and are become scarce, it may be worth while to mention that a copy is in the possession of Dr. Mitchill, which he received from the Academy of Arts and Sciences at Cape Francois, a respectable institution before the overthrow of that unfortunate colony.

Voyages from New-York to distant places to procure the Skins of Seals and other Amphibious Animals.

The islands at which our countrymen are in the habit of collecting Seal Skins, are the following: 1. Statenland; 2. Falkland's islands; 3. Southern Georgia; 4. Crozat's islands; 5. Prince Edward's islands; 6. Kerguelan's land; 7. Uninhabited part of the S. W. coast of New Holland; 8. New Zealand isles; 9. Southern Antipodes; 10. Masafuero; 11. Uninhabited part of the coast of California; 12. Gallipagos islands, and some other regions unfrequented by man; whither large societies of the *Phocæ* resort. For it is remarkable that both the sea-dog (or seal) and the sea-elephant never frequent the coasts where their persecutor man resides. The places at which ships abroad on these butchering voyages, usually touch for refreshments, are the Cape of Good Hope, the ports of Chili and the Sandwich islands.

Report on Cow-Pox, by Dr. John D. Gillepsie, physician to the New-York Dispensary. Published by order of the Board.

In conformity to an ordinance of the Trustees of the New-York Dispensary, the Physician of the Cow-pock Department respectfully reports, that since his appointment on the 6th of December last, to the 6th of June, he has vaccinated 419 persons, whose names, ages, places of residence, with other particulars and results will be found in the Register of the Institution, from which it will appear that the disease, as usual, has in *no instance* proved fatal; but, on the contrary, very uniformly mild, and as a preventative of small pox, as far as attempts have been made to induce that disease by after-inoculation, or exposure to its effluvia, entirely efficacious. Among a variety of experiments, instituted with this view, and which amount in number to about 100, he would refer particularly to his report made to the Trustees of the New-York Asylum, where, at their request, he vaccinated thirty-six children, on the 10th of January last, who having undergone the regular disease, the first twelve on the list were inoculated for the small-pox in March; in every one of which it failed to take effect, a trifling inflammation of the part inoculated being the only inconvenience they suffered from the attempt. But at the same time that it is with great satisfaction he has it in his power to present this favourable statement to the Trustees, and to congratulate them on their successful endeavours in diffusing the benefits, and confirming the confidence of the public, in the new inoculation; it is also made his duty to state the occasional inconveniences he has met with in the practice.

First. Diseases of the skin being very common to children, and especially those of the poor, it has been found difficult in such cases to induce the Cow-pock, it frequently requiring repeated vaccination, and a length of time, during which, in a populous city, where small pox prevails, they may be exposed to the more powerful contagion of that highly dangerous disease: in such cases also the vaccine, even if induced, does not always observe its regular characteristic marks; and of course cannot so confidently be pronounced a security against small pox. Again, even in the most healthy children, it is sometimes necessary to vaccinate two or more times, owing either to the virus of the in-

fection being impaired, or more probably to some other action going on at the time in the system of the child. It may also happen from an improper *mode* of performing the operation. In order to determine which, with most certainty, succeeds, a great variety have been attempted; and of those hitherto used, the Vaccinator of Mr. Fancher, [see Reg. No. 1577 to 1594] has answered best. Should future experience establish this preference, the difficulty of preserving the infection will be done away; this method only requiring the dry scab, which may easily be kept for months.

2nd. An objection has been made to Cow-pock, that it is frequently followed either immediately, or at some remote period, with eruptions; and this has been observed of many vaccinated at the Institution. They have not however been obstinate, nor did they affect the general health of the person: they probably are occasioned more by the diet and manner of life of the indigent, than any impurity of the infection, as they less frequently occur where cleanliness and proper attention are observed. It would appear that children are more subject to this consequence of vaccination than adults; one case only (No. 1471) having occurred in a grown person, in whom they were few, but obstinate, resembling very much small pox: in short, corresponding with the observation of Dr. Pearson, of London, and others, " that they could not be distinguished from small-pox."

3d. Two unexpected results have occurred among those enumerated in this report.

Case 1st.—Mary Withingham, aged 56, Theatre-alley, was vaccinated on Jan. 17th, and had on the 8th day following the perfect vesicle, and usual characteristic of the true disease; on the 6th of February, after fever, and the common precursors of the small-pox eruptions, she was seized with that disease. Drs. Post, Hosack, Bruce, Stringham, and others saw this patient, and were satisfied that it was small-pox; it was also evident from the still remaining vaccine scab, that she had had that disease. To put the nature of the eruption beyond all doubt, I inoculated two persons from this patient, who both had the regular small-pox. Some of the infection was also given to two physicians, by whom it was used with the same result. It is proper to remark, that the small-pox was remarkably mild in this case, the pustules being few, distinct and well filled. It is still more

important to add, that she had been exposed to the infection of natural small-pox a week previous to her vaccination. A case in every respect similar to the above, occurred in my practice in the Alms-house of this city, last August, and another is stated by a committee of the Royal Jennerian Institution, to have happened in Holborne Rents, London.

Case 2d.—A child was vaccinated, 17th of March; on the 8th day following, as usual, infection was taken from it—(the disease being perfect with all its characteristics)—but what was remarkable, it had at this time a plentiful eruption of small-pox, to which disease it had been exposed by an imprudent visit some days previous. The two diseases appeared entirely distinct and independent of each other, so that a person acquainted with both, could not hesitate on seeing the vesicle and eruption, to pronounce the one genuine cow-pox, and the other ordinary small-pox. This case was also examined by several of our most experienced practitioners, in order still further to put the matter beyond doubt. I vaccinated six children from the fluid of the vesicle, who all had regular cow-pock, and were afterwards tested by small-pox inoculation without effect. From the matter of the small-pox eruption, several children had the small-pox. The same results occurred to other physicians, to whom I gave some of the infection of each disease.

With these cases which I have endeavoured faithfully to collect and impartially to record, I submit this report, observing that they add no evidence to the arguments of those who have insisted on the inefficacy of cow-pox as a preventative against small-pox, but on the contrary are easily adapted to the reasonings and experience of those who maintain a contrary opinion. The last case *apparently* stands arrayed against a universally received law of the animal economy, and would upset much of the reasonings of physiologists. But if, as has been suspected, the cow pox and small-pox are of common origin, or in other words, different modifications of the same disease; for instance, if the small-pox of the human subject, transferred by any means to the cow, produces in her a disease of a milder kind, but still so far retaining its original nature, as to be a future preventive against the operation of the cause that produced it; the solution of the above fact is easily ascertained, and I suggest this explanation, that physicians residing in the country may turn their attention to this easy experiment. Should this confirm the opinion, what a field would it open

for medical reform! what a deduction from the catalogue of human maladies, and in what an extended sense, were the beasts of the field created for the benefit of man.

New-York Dispensary,
July 17th, 1809.

New Edition of Sydenham's Works, and of Cleghorn's Minorca.

The medical public, we are confident, will be much gratified to learn that Dr. Rush is putting to press an edition of *Sydenham* with Notes, and likewise of *Cleghorn's* Diseases of Minorca. By this means, these inestimable works will be accommodated to the climate and diseases of the United States. Dr. Rush will prefix to Cleghorn's Minorca, a short account of his life.

Elementary nature of Water.

Mr. Vose informs us, under date of 30th of last April, from Edinburgh, that in a private letter received there about three weeks previous, by Professor Hope from Mr. Davy, it was stated that from a variety of Galvanic experiments, frequently repeated, he was compelled to conclude that *Water is a simple Element.* It was also stated, that the celebrated Cavendish, the original decomposer of water, (as it had been believed) was invited to attend the experiments, and could not refuse his assent to the legitimacy of the inference.

Progress in the treatment of Aneurisms.

We are informed by Mr. Vose, now pursuing his studies in Edinburgh, that the treatment of Aneurism still greatly engages the attention of the most eminent surgeons. Mr. Cline lately performed the operation in a case of Carotid Aneurism, under favourable auspices; but, owing to an unfortunate contingency soon afterwards, the patient died.

An interesting operation for Femoral Aneurism, in consequence of fracture of the thigh, was not long since performed by Professor Thomson, of Edinburgh, which also terminated unsuccessfully.

The particulars of these two cases, as transmitted to us by Mr. Vose, will appear in our next number.

In a letter from Mr. Abernethy, of London, to Dr. Hosack, dated June 4th, 1809, which has been obligingly communicated to us by that gentleman, the following facts are

stated: "I have lately tied the external iliac artery, for the fourth time, and the operation has been perfectly successful. It has been also thrice performed by other surgeons, with a degree of success that evinces it to be as little hazardous as any other operation for an Aneurism."

Further trials of Mr. Watt's treatment of Diabetes by copious blood-letting. (See Hex. II. Vol. vi. p. 289.)

Two cases of Diabetes in the Royal Infirmary of Edinburgh, (as we are informed by our friend Mr. Vose) have been lately treated by blood-letting; one by Dr. Duncan, sen. the other by Dr. Hamilton. In the former, the remedy was not carried to the extent advised by Mr. Watt. Three bleedings only of 16 ounces each, were used; the urgent symptoms, and especially the quantity of urine, were diminished; but the patient died.

Dr. Hamilton's patient was bled more boldly. He lost by repeated bleedings 150 ounces of blood; he was sensibly better after every bleeding; the quantity of urine, the thirst, dryness and heat of the skin, and the febrile accessions, were all remarkably diminished. He was then discharged for disorderly conduct, and observed some time afterwards begging in the streets of Edinburgh, but labouring apparently under no other disease but debility.

Death of Professor Woodhouse.

DIED—on Sunday afternoon, June 4th, 1809, in the 39th year of his age, Dr. JAMES WOODHOUSE, late Professor of Chemistry in the University of Pennsylvania.

Testimony of respect to the late Professor Woodhouse.

At a full meeting of the Medical Class of the University of Pennsylvania, held at Philadelphia June 7th, 1809, the following resolutions were unanimously adopted.

1st. Resolved, That in testimony of the high respect and affectionate attachment which we entertain for the late Professor Woodhouse, that each of us will wear crape on the arm for the space of one month.

2d. Resolved, That Professor Barton be requested to prepare an eulogium on the late Professor Woodhouse, to be pronounced before the Medical Class at their meeting next season.

Vacant Professorship of Chemistry filled.

At a meeting of the Trustees of the University of Pennsylvania, on Monday, July 10, 1809—JOHN REDMAN COXE, M. D. was appointed Professor of Chemistry in that University, in place of Dr. James Woodhouse, lately deceased.

FOREIGN.

ROYAL SOCIETY OF LONDON.

HAVING in our last given an account of Mr. Davy's discoveries with regard to potash, we shall proceed, as we proposed, to consider the properties and nature of the basis of Soda. The basis or metallic substance obtained by decomposition, is a solid at the common temperature. It is white, opaque, and if examined under a film of naphtha, has the lustre and general appearance of silver. It is exceedingly malleable, and is softer than any of the common metallic substances. It is a good conductor of electricity and heat, and small globules of it inflame by the voltaic electrical spark, and burn with bright explosions: its specific gravity is something more than 93. It becomes fluid at about 180° of Fahrenheit; but the exact degree of heat, at which it becomes volatile, has not been ascertained.

The chemical phenomena, produced by the basis of soda, are in many respects analogous to those produced by the basis of potash: when exposed to the atmosphere, it immediately tarnishes, and by degrees becomes covered with a white crust, which deliquesces much more slowly than the substance that forms on the basis of potash, and which proves to be pure soda. The basis combines slowly with oxygen, and without luminous appearance, at all common temperatures: and when heated, this combination becomes more rapid; but no light is emitted, till it has acquired a temperature nearly that of ignition. In oxygen gas, it burns with a white light: in oxymuriatic acid gas, it burns vividly with a bright red light; saline matter is formed, which

proves to be muriate of soda. When thrown upon water, it produces a violent effervescence, with a loud hissing noise; it combines with the oxygen of the water to form soda, which is dissolved, and its hydrogen is disengaged.

The basis of soda acts upon alcohol and ether in the same manner with the basis of potash. The water contained in them is decomposed; soda is rapidly formed, and hydrogen is disengaged. When thrown upon the strong acids, it acts upon them with great energy; if the nitrous acid is employed, a vivid inflammation is produced; with muriatic and sulphuric acids, there is much heat generated, but no light.

It combines with sulphur in close vessels, filled with the vapour of naphtha, with great vividness, with light, heat, and afterwards with explosion from the vaporization of a portion of sulphur, and the disengagement of sulphuretted hydrogen gas. The phosphuret has the appearance of lead, and forms phosphate of soda, by exposure to the air, or by combustion. The basis of soda, in the quantity of one fortieth part, renders mercury a fixed solid of the colour of silver, and the combination is attended with a considerable degree of heat. It makes an alloy with tin, without changing its colour; and it acts upon lead and gold when heated.

From some very accurate experiments, Mr. Davy has found that 100 parts of potash consist of 86.1 of the basis, and 13.9 of oxygen: and in 100 parts of soda, there will be 80 parts of the basis, and 20 of oxygen.

To the question, whether the bases of potash and soda should be called metals, Mr. Davy says, that the greater number of philosophical persons answer in the affirmative. They agree with metals in opacity, lustre, malleability, conducting powers as to heat and electricity, and in their qualities of chemical combination: their low specific gravity does not appear a sufficient reason for making them a new class; for among the metals themselves, there are remarkable differences in this respect, platina being nearly four times as heavy as tellurium; and in the philosophical division of the classes of bodies, the analogy between the greater number of properties must always be the foundation of arrangement. Hence the bases of the alkalies are denominated, Potassium, and Sodaum.

In reference to his own discoveries, Mr. Davy observes, that, " In the common processes of nature, all the products of living beings may be easily conceived to be elicited from known combinations of matter. The compounds of iron,

of the alkalies, and earths, with mineral acids, generally abound in soils. From the decomposition of basaltic, porphyritic, and granitic rocks, there is a constant supply of earthy, alkaline, and ferruginous materials to the surface of the earth. In the sap of all plants, that have been examined, certain neutro-saline compounds, containing potash, or soda, or iron, have been found. From plants, they may be supplied to animals. And the chemical tendency of organization seems to be rather to combine substances into more complicated and diversified arrangements, than to reduce them to simple elements."

From the fixed alkalies, the Professor proceeded to the earths, which are non-conductors of electricity. The alkalies become conducting substances by fusion: the infusible nature of the earths, rendered it impossible to operate upon them in this state: the strong affinity of their bases for oxygen, would not admit of their bodies being acted upon by solution in water; and the only methods that proved successful, were those by which they were operated upon by electricity in some of their combinations, or of combining them at the moment of their decomposition by electricity, in metallic alloys, so as to obtain evidences of their nature and properties.

On this plan, Mr. Davy undertook a series of experiments on Barytes, Strontites, and Lime, employing upon them the same methods as he had used in the decomposition of the fixed alkalies. Gas was, in each case, copiously evolved, which was inflammable; and the earths, where in contact with the negative metallic wires, became dark-coloured, and exhibited small points, having a metallic lustre, which, when exposed to air, gradually became white: they became white likewise when plunged under water; and when examined by a magnifier, a greenish powder seemed to separate from them.

He then made mixtures of dry potash in excess, and dry barytes, lime, strontites, and magnesia, brought them into fusion, and acted upon them in the voltaic circuit, as he had done in obtaining the metals of the alkalies. He hoped, by this means, that the potassium, and the metals of the earths, might be deoxygenated at the same time, and enter into combination in alloy. Metallic substances appeared less fusible than potassium, which burnt the instant after they had formed, and which, by burning, produced a mixture of potash, and the earth employed. He had found,

that when a mixture of potash and the oxides of mercury, tin, or lead, was electrified in the Voltaic circuit, the decomposition was very rapid, and an amalgam, or an alloy of potassium, was obtained. He tried the same on a mixture of two parts of barytes, and one part of oxide of silver, very slightly moistened: when it was electrified by iron wires, an effervescence took place at both points of contact, and a minute quantity of a substance, possessing the whiteness of silver, formed at the negative point.

A mixture of barytes and red oxide of mercury, in the same proportions, was electrified in the same manner. A small mass of solid amalgam adhered to the negative wire, which evidently contained a substance that produced barytes by exposure to air, with the absorption of oxygen; and which occasioned the evolution of hydrogen from water, leaving pure mercury, and producing a solution of barytes. Mixtures of lime, strontites, magnesia, and red oxide of mercury, treated in the same manner, gave similar amalgams, from which the alkaline earths were regenerated by the action of air and water.

While Mr. Davy was pursuing these experiments, he heard that Professor Berzelius, and Dr. Pontin, of Stockholm, had succeeded in decomposing barytes and lime, by negatively electrifying mercury in contact with them; and that in this way they had obtained amalgams of the metals of these earths. Mr. Davy repeated the experiments with a battery of 500, and obtained the most perfect success. The mercury gradually became less fluid, and after a few minutes, was covered with a white film of barytes; and when the amalgam was thrown into water, hydrogen was disengaged, the mercury remained free, and a solution of barytes was formed. The result with lime was precisely analogous, so also was that with strontites; with magnesia it was with more difficulty obtained. All these amalgams may be preserved a considerable period under naphtha; but in a length of time they become covered with a white crust. When exposed to air, a very few minutes only were required for the oxygenation of the bases of the earths.

In several cases, Mr. Davy exposed the amalgams of the metals of the earths, containing only a very small quantity of mercury, to the air, on a delicate balance; and he always found that, during the conversion of metal into earth, there was a considerable increase of weight. He also found that, when the metals of the earths were burned in a small

quantity of air, they absorbed oxygen, gained weight, and were in a highly caustic or unslaked state; for they produced strong heat by the contact of water, and did not effervesce during their solution in acids. Hence it is inferred, that the evidence for the composition of the alkaline earths, is of the same kind as that for the composition of the common metallic oxides; and the principles of their decomposition are precisely similar; the inflammable matters in all cases, separating at the negative surface in the Voltaic circuit, and the oxygen at the positive surface. The professor denominates the metals obtained from the alkaline earths, *Barium*, *Strontium*, *Calcium*, and *Magnium*.

The professor next tried a number of experiments on the other earths, which are not alkaline; and from the general tenor of these results, and the comparison between the different series of experiments, there seems very great reason to conclude that alumine, zircon, glucine, and silex, are, like the alkaline earths, metallic oxides. He admits, however, that the evidences of decomposition and composition are not of the same strict nature as those that belong to the fixed alkalies, and alkaline earths; for it is possible that in the experiments, in which silex, alumine, and zircon appeared to separate during the oxidation of potassium and sodaum, their bases might not actually have been in combination with them, but the earths themselves, in union with the metals of the alkalies, or in mere mechanical mixture.

The strong attraction of potassium, sodaum, and the metals of the alkaline earths for oxygen, led Mr. Davy to examine if their deoxydating powers could not be made to produce the effect of the amalgamation of ammonia, independently of the agency of electricity; and he found that, when mercury, united to a small quantity of potassium, sodaum, barium, or calcium, was made to act upon moistened muriate of ammonia, the amalgam rapidly increased to six or seven times its volume, and the compound seemed to contain much more ammoniacal basis, than that procured by electrical powers.

The amalgam from ammonia, when formed at the temperature of 70° or 80°, is a soft solid, of the consistence of butter; at the freezing temperature it becomes firmer and a crystallized mass, and its specific gravity is below 3. When exposed to air, it soon becomes covered with a white crust, which proves to be carbonate of ammonia.

"The more," says Mr. Davy, "the properties of the

amalgam obtained from ammonia, are considered, the more extraordinary do they appear. Mercury, by combination with about the one twelve thousandth part of its weight of new matter, is rendered solid, yet it has the specific gravity diminished from 13.5 to less than 3, and it retains all its metallic characters; its colour, lustre, opacity, and conducting powers, remaining unimpaired. It is scarcely possible to conceive, that a substance which forms with mercury so perfect an amalgam, should not be metallic in its own nature; hence it may be denominated ammonium."

From the preceding facts, the following questions have occurred: on what do the metallic properties of ammonium depend? Are hydrogen and nitrogen both metals in the aeriform state, at the usual temperature of the atmosphere, bodies of the same character as zinc and quicksilver would be in the heat of ignition? Or are these gases, in their common form, oxides, which become metallized by deoxydation? Or are they simple bodies, not metallic in their own nature, but capable of composing a metal in their deoxygenated, and an alkali in their oxygenated, state?

Assuming the existence of hydrogen, in the amalgam of ammonium, its presence in one metallic compound evidently leads to the suspicion of its combination in others. And in the electrical powers of the different species of matter, there are circumstances which extend the idea to combustible substances in general. Oxygen is the only body which can be supposed elementary, attracted by the positive surface in the electrical circuit; and all compound bodies, the nature of which is known that are attracted by this surface, contain a considerable proportion of oxygen. Hydrogen is the only matter attracted by the negative surface, which can be considered as acting the opposite part to oxygen; "may not then," says the Professor, "the different inflammable bodies, supposed to be simple, contain this as a common element?"

Should future experiments prove the truth of this hypothesis, still the alkalies, the earths, and the metallic oxides, will belong to the same class of bodies. From platina to potassium, there is a regular order of gradation as to their physical and chemical properties, and this would probably extend to ammonium, could it be obtained in the fixed form. Platina and gold, in specific gravity, degree of oxydability, and other qualities, differ more from arsenic, iron, and tin, than these last do from barium and strontium. The phe-

nomena of combustion of all oxidable metals, are precisely analogous. In the same manner as arsenic forms an acid, by burning in air, potassium forms an alkali, and calcium an earth; in a manner similar to that in which osmium forms a volatile and acrid substance by the absorption of oxygen, does the amalgam of ammonium produce the volatile alkali; and if we suppose that ammonia is metallized, by being combined with hydrogen, and freed from water, the same reasoning will apply to the other metals, with this difference, that the adherence of their phlogiston, or hydrogen, would be exactly in the inverse ratio of their attraction for oxygen. In platina, it would be combined with the greatest energy; in ammonium with the least; and if it be separable from any of the metals, without the aid of a new combination, we may expect that this result will be afforded by the most volatile and oxidable, such as arsenic, or the metals of the fixed alkalies, submitted to intense heat, under electrical polarities, and having the pressure of the atmosphere removed.

Mr. Davy concludes by hoping, that the new facts which he has discovered, may admit of many applications, and explain some phenomena in nature. "The metals of the earths," he says, "cannot exist at the surface of the globe; but it is very possible that they may form a part of the interior; and such an assumption would offer a theory for the phenomena of volcanoes, the formation of lavas, and the excitement and effects of subterraneous heat; for let it be granted that the metals of the earths and alkalies, in alloy with common metals, exist in large quantities beneath the surface, then their accidental exposure to the action of air and water, must produce the effect of subterranean fire, and a product of earthy and stony matter analogous to lavas. The luminous appearance of those meteors, connected with the fall of stones, is one of the extraordinary circumstances of these wonderful phenomena. This effect may be accounted for, by supposing that the substances which fall, come into our atmosphere in a metallic state; and that the earths, of which they principally consist, are results of combustion."

At the meeting of the Royal Society, February 2, a most curious and interesting paper, by Mr. Davy, was read, giving an account of various experiments on the action of potassium on ammonia; from which it appears that a considerable quantity of nitrogen can be made to disappear, and

can be regenerated. When it disappears, nothing can be obtained in its place but oxygen and hydrogen; and when it is formed, its elementary matter is furnished by water.

[*Lon. Month. Mag. for May* 1809.]

Messrs. Allen and Pepys have laid before this learned body an account of a great number of experiments, made with a view of ascertaining the changes produced in atmospheric air and oxygen gas by respiration; from which they infer:

1. That the quantity of carbonic acid gas emitted is exactly equal, bulk for bulk, to the oxygen consumed; and therefore there is no reason to conjecture, that any water is formed by a union of oxygen and hydrogen in the lungs.

2. Atmospheric air once entering the lungs returns charged with from 8 to $8\frac{1}{2}$ per cent. carbonic acid gas, and when the contacts are repeated almost as frequently as possible, only 10 per cent. is emitted.

3. It appears, that a middle-sized man, aged thirty-eight years, and whose pulse is seventy on an average, gives off 302 cubical inches of carbonic acid gas from his lungs in eleven minutes; and supposing the production uniform for twenty-four hours, the total quantity in that period would be 39,534 cubical inches, weighing 18,683 grains, the carbon in which is 5,363 grains, or rather more than 11 oz. troy: the oxygen consumed in the same time will be equal in volume to the carbonic acid gas. The quantity of carbonic acid gas, emitted in a given time, must depend much on the circumstances under which respiration is performed.

4. When respiration is attended with distressing circumstances, there is reason to conclude, that a portion of oxygen is absorbed: and as the oxygen decreases in quantity, perception gradually ceases, and we may suppose, that life would be completely extinguished on the total abstraction of oxygen.

5. A larger proportion of carbonic acid gas is formed by the human subject from oxygen, than from atmospheric air.

6. An easy, natural inspiration is from 16 to 17 cubical inches, though this will differ in different subjects; and it is supposed, that the quantity of carbonic acid gas, given off in a perfectly natural respiration, ought to be reckoned at less than at a time when experiments are making on the human subject for the purpose, because in short inspirations the quantity of air, which has reached no farther than the fauces, trachea, &c. bears a much larger proportion to the whole mass required, than when the inspirations are deep.

7. No hydrogen, nor any other gas, appears to be evolved during the process of respiration.

8. The general average of the deficiency in the total amount of common air inspired, appears to be very small, amounting only to 6 parts in 1000.

9. The experiments upon oxygen gas prove, that the quantity of air remaining in the lungs, and its appendages is very considerable; and that without a reference to this circumstance, all experiments upon small quantities of gas are liable to inaccuracy.

[*Lon. Month. Mag. for June* 1809.]

Mr. Brande has laid before the Royal Society an account of the differences in the structure of calculi, which arise from their being formed in different parts of the urinary passages; and on the effects that are produced upon them by the internal use of solvent medicines. The experiments made by this gentleman were very numerous, and on an uncommonly large collection of calculi, to most of which histories of the case are annexed. The subject is divided into different sections: the 1st relates to calculi formed in the kidnies, and voided without having undergone any changes in the urinary passages. These are entirely soluble in a solution of pure potash: and when exposed to the action of the blow-pipe, they blacken and emit a strong odour, which arises from the animal matter which they contain, and which occasions the loss in the analysis of these calculi. Its relative quantity is liable to much variation. In one instance a calculus from the kidney, weighing 7 grains, was ascertained to consist of

	Grains.
Uric acid . . .	4.5
Animal matter . .	2.5
	7.0

In some cases the calculi from the kidneys consist almost wholly of uric acid; sometimes phosphate of lime was combined with the acid.

I. In treating of the calculi which have been formed in the kidneys, and which frequently increase in that situation to a considerable size, he observes that this augmentation is of two kinds.

1. When there is a great disposition to the formation of uric acid, the calculus consists wholly of that substance and

animal matter, so as frequently to form a complete cast of the pelvis of the kidney.

2. Where there is less disposition to form uric acid, the external laminæ are composed of the ammoniaco-magnesian phosphate, and phosphate of lime.

In one instance, a small uric calculus was so deposited on the kidney, that its upper surface was exposed to a continual stream of urine, upon which beautiful crystals of the triple phosphate had been deposited. Mr. Brande therefore infers, that, under common circumstances, a stream of urine passing over a calculus of uric acid, has a tendency to deposit the phosphate upon it.

II. The calculi of the urinary bladder are of four kinds:

1. Those formed upon nuclei of uric acid, from the kidney.

2. Those formed upon nuclei of oxalate of lime from the kidney.

3. Those formed upon sand or animal mucus deposited in the bladder.

4. Those formed upon extraneous bodies introduced into the bladder. These are arranged under the following divisions:—First, Calculi, which from their external appearance consist chiefly of uric acid, and which are chiefly or entirely soluble in a solution of pure potash. Secondly, Calculi composed chiefly of the ammoniaco-magnesian phosphate, or of phosphate of lime, or of mixtures of the two. These are characterized by their whiteness; by exhibiting small prismatic crystals upon their surface, and by their solubility in dilute muriatic acid. Thirdly, Calculi, containing oxalate of lime, commonly called mulberry calculi. These are distinguished by the difficulty with which they are dissolved in acids, by their hardness, and by leaving pure lime, when exposed to the action of the blow-pipe.

By analysis a calculus of 60 grains yielded

	Grains.
Urea and muriate of ammonia	5.2
Ammoniaco-magnesian phosphate	6.
Uric acid	48.8
	60.0

From this and many other experiments, Mr. Brande concludes, that the evolution of ammonia depends in all instances upon the decomposition of the ammoniacal salts con-

tained in the calculus, more especially of the ammoniaco-magnesian phosphate, and that no substance which can be called urate of ammonia exists in calculi.

By analysis it was found, that a pure specimen of the mulberry calculus consists of

	Grains.
Oxalate of lime	65
Uric acid	16
Phosphate of lime	15
Loss in animal matter	4
	100

III. The calculi found in the urethra consist of ammoniaco-magnesian phosphate, and phosphate of lime, with a small portion of uric acid; though some appeared to consist almost wholly of ammoniaco-magnesian phosphate.

Mr. Brande, in the next section, has given the result of analysis of the calculi found in the horse, ox, sheep, rhinoceros, dog, hog and rabbit. These were found mostly to consist of phosphate of lime and carbonate of lime in different proportions. In some, small proportions of animal matter were combined with the other substances.

The inferences drawn from these interesting and important facts are as follow:

That calculi formed in the kidneys, and immediately voided, are almost always composed of uric acid, and that the phosphates are very frequent ingredients in calculi of the bladder. They are uniformly deposited upon extraneous substances introduced into the bladder, but never form small kidney calculi. In what is commonly called a fit of the gravel, a small uric calculus is formed in the kidney, and passes along the ureter into the bladder. For some time after a stone has passed from the kidney, the urine is generally unusually loaded with uric acid, and deposits that substance upon the nucleus now in the bladder. After this, the subsequent additions to the calculus consist principally of the phosphates.

Where the disposition to form uric acid in the kidneys is very great and permanent, the calculus found in the bladder is principally composed of uric acid; but where this disposition is weak, the nucleus only is uric acid, and the bulk of the stone is composed of the phosphates. When the increased secretion of uric acid returns at intervals, the calculus is composed of alternate layers of uric acid and the

phosphates. There are besides these many variations in the formation of the calculi.

In speaking of the solvents, Mr. Brande admits, that the internal exhibition of the alkalies often prevents the formation of the uric acid, and of course an increase of a calculus in the bladder, as far as the uric acid is concerned; but that its action will not proceed any farther; because from his experiments he finds there is at all times a quantity of uncombined acid in the urine; and hence it follows, that, although the alkali may arrive at the kidneys in its pure state, it will there unite with the uncombined acid, and be rendered incapable of exerting any action upon the calculus in the bladder. Mr. B. also observes, that whenever the urine is deprived of a portion of the acid which is natural to it, the deposition of the triple phosphate and phosphate of lime more readily takes place, which is effected by the exhibition of the alkalies; and, therefore, though alkaline medicines often tend to diminish the quantity of uric acid, and thus prevent the addition of that substance in its pure state to a calculus in the bladder, they favour the deposition of the phosphates.

With regard to the exhibition of the acids, particularly the muriatic acid, in order to dissolve the phosphates, Mr. B. admits, that, during the use of this acid, the phosphates are either diminished, or disappear altogether; and even the urine acquires sometimes an additional acidity, and therefore a solution of that part of the calculus, which consists of the phosphates, may be expected; but even then the nucleus of uric acid would remain, and thus a great deal of time would be lost without any permanent advantage. He is also decidedly against the injection of these solvents into the bladder, at once, by means of instruments; because in every case that has come under his observation, it has always aggravated the sufferings of the patient. He concludes, that as the nuclei of calculi originate in the kidneys, and that of these the greater number consist of uric acid; the good effects so frequently observed during the use of an alkali, arise not from any actual solution of calculous matter, but from the power which it possesses of diminishing the secretion of uric acid, and thus preventing the enlargement of the calculus; so that, while of a very small form, it may be voided by the urethra.

In a following number we shall give an account of Mr. Home's observations on the same subject.

[*Lon. Month. Mag. for June* 1809.]

National Institute.

Messrs. Gay Lussac and Thenard have given an account of the method which they adopted in decomposing the boracic acid. They put equal parts of potassium, and pure vitreous boracic acid, into a copper tube, to which a bent glass tube was fitted. The copper tube was placed in a small furnace, and the extremity of the glass tube plunged into a bason of quicksilver. As soon as the temperature was raised to 150° (Reaumur, we presume), the mixture became suddenly red, much heat was produced, the glass broken, and almost the whole of the air in the apparatus was driven out with great force. Only atmospheric air was disengaged, and a few bubbles of hydrogen. All the potassium disappeared, although it only decomposed a part of the acid. These substances were changed by their reciprocal action into an olive grey substance, which is a compound of potash and of the basis of boracic acid. The boracic radical was separated from it by washing it with hot or cold water. That which does not dissolve, is the radical itself, which possesses the following properties: this radical is greenish brown, fixed, and insoluble in water. It has no taste, nor any action on tincture of litmus, or on syrup of violets. Being mixed with oxymuriate of potash, or nitrate of potash, and projected into a red hot crucible, it entered into vivid combustion, of which the boracic acid was one of the products. The most curious and most important of all the phenomena produced by the boracic radical when placed in contact with other bodies, are those that it presents with oxygen. When four grains and a half of boracic radical, were projected into a silver crucible covered with a jar, containing a little more than a quart of oxygen, and the whole placed over quicksilver, a most rapid combustion took place, and the quicksilver rose to about the middle of the jar. The boracic radical exhibits the same phenomena with air as with oxygen, only that the combustion is less rapid. Hence it follows, that the boracic acid is composed of oxygen, and a combustible body: and that this substance is of a peculiar nature, and ought to be classed with phosphorus, carbon, and sulphur. It requires a great quantity of oxygen to change it into boracic acid, and it previously passes into the state of a black oxyd.

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